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ANTHONY'S

Photographic Bulletin.

VOLUME XXVIII.

1897.

EDITORS:

Prof. CHAS. F. CHANDLER, Ph.D., LL.D.
W. I. SCANDLIN.

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NEW YORK:
E. & H. T. ANTHONY & CO., PUBLISHERS,
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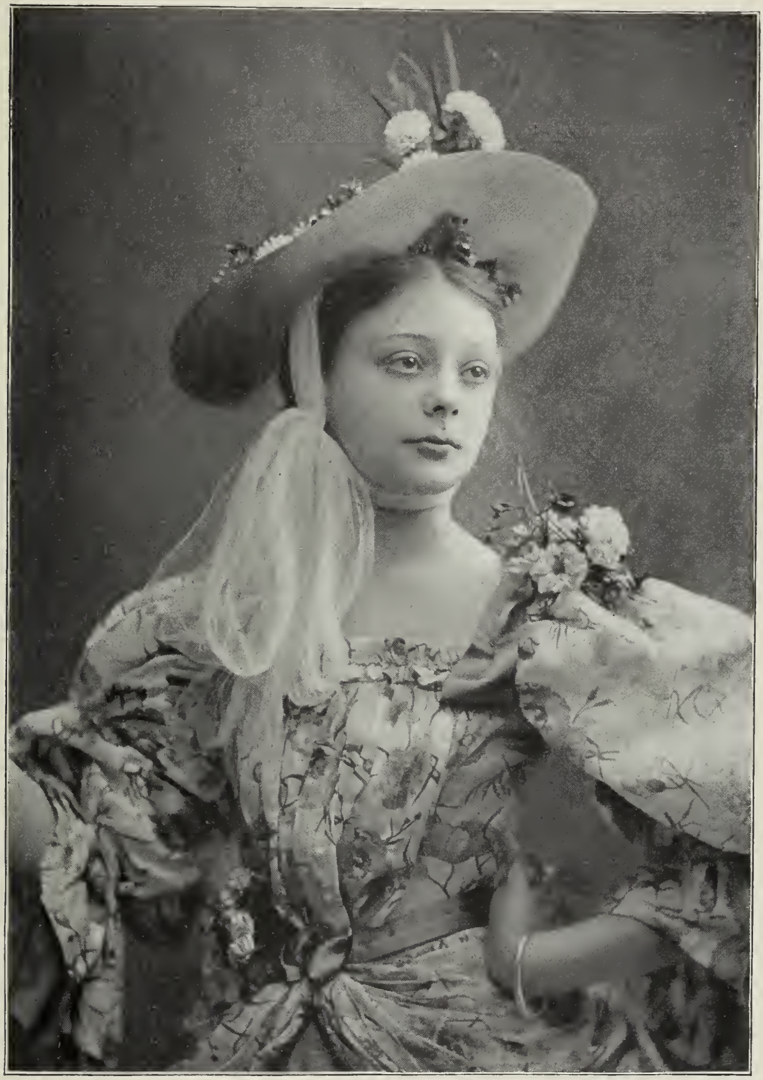
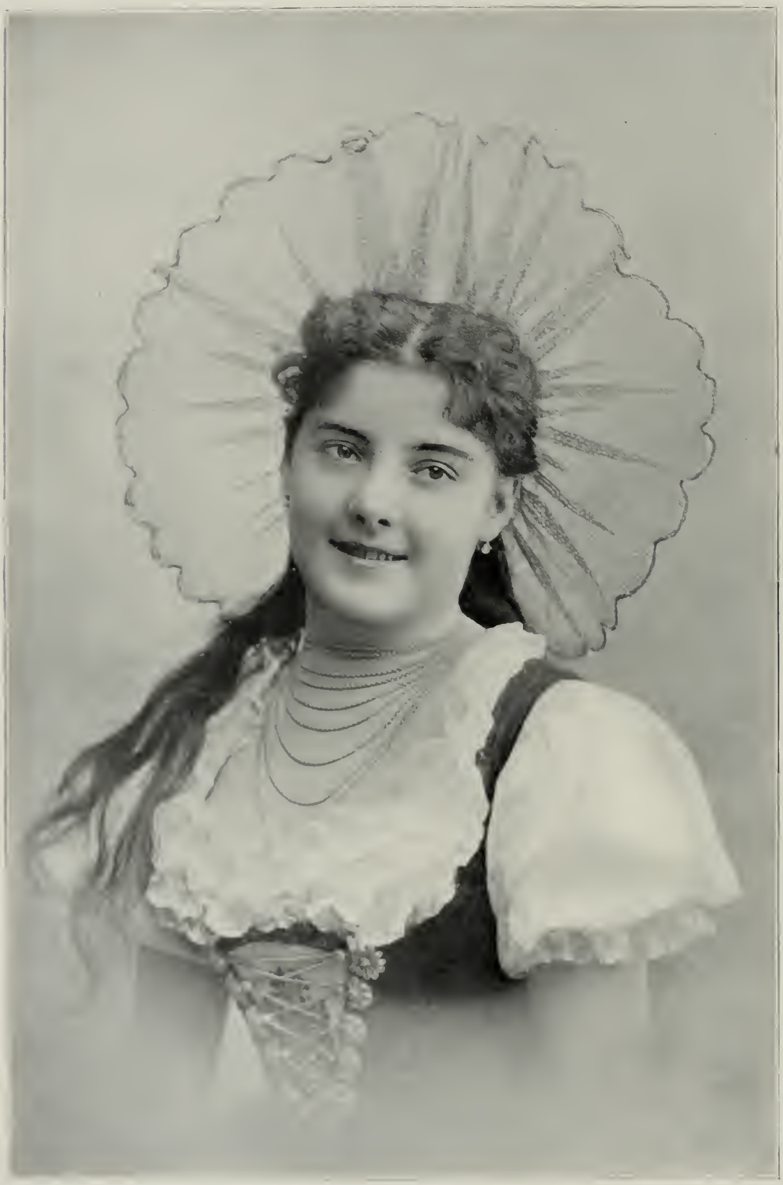


STUDY BY DECKER & EDMONDSON

ENGRAVED WITH RICHARDS' CROSS-LINE SCREEN, 150 LINES



STUDY BY S. NEWMAN

ENGRAVED WITH RICHARDS' CROSS-LINE SCREEN, 150 LINES

ANTHONY'S

Photographic Bulletin.

EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.
FREDERICK J. HARRISON.

Vol. XXVIII. JANUARY, 1897. No. 1.

THE PAST YEAR.

THE year 1896 will be a memorable one in the history of photography. It has furnished its quota of photographic achievements and has attracted to the ranks of photography many whose efforts cannot fail to result in further beneficial results. The practical application of the principles given to the world by Röntgen in the closing months of 1895 and the bringing to a high state of perfection of the displaying of animated photographs on the screen are in themselves two achievements which mark an epoch in the history of photography. We doubt not that during the coming year equally successful efforts will be made in other directions, and we shall endeavor to forward such efforts by all means in our power. The art side of photography is also receiving, deservedly, much attention, and we hope to present during the year studies by authorities that will serve as object lessons to those desiring to raise the standard of their work.

The problem of photographing in colors still remains unsolved. It does not, however, seem as hopeless as before, and the coming year may solve it.

Photo-reproduction is a branch of photography that may well receive more attention from photographers. Three-color work has advanced considerably during the past year, and there is every probability that, with so many competent workers now engaged in this most beautiful of processes, much advancement will be recorded at the close of 1897.

This issue of our journal may be taken as a fair sample of what subsequent issues will be, and we invite the hearty co-operation of our readers in the work we have undertaken. The past year has been to many a far from prosperous one, but the outlook is brighter, and we feel that there is every prospect of better things ahead.

To all our readers, and to photographers generally, we wish

A HAPPY AND PROSPEROUS NEW YEAR.

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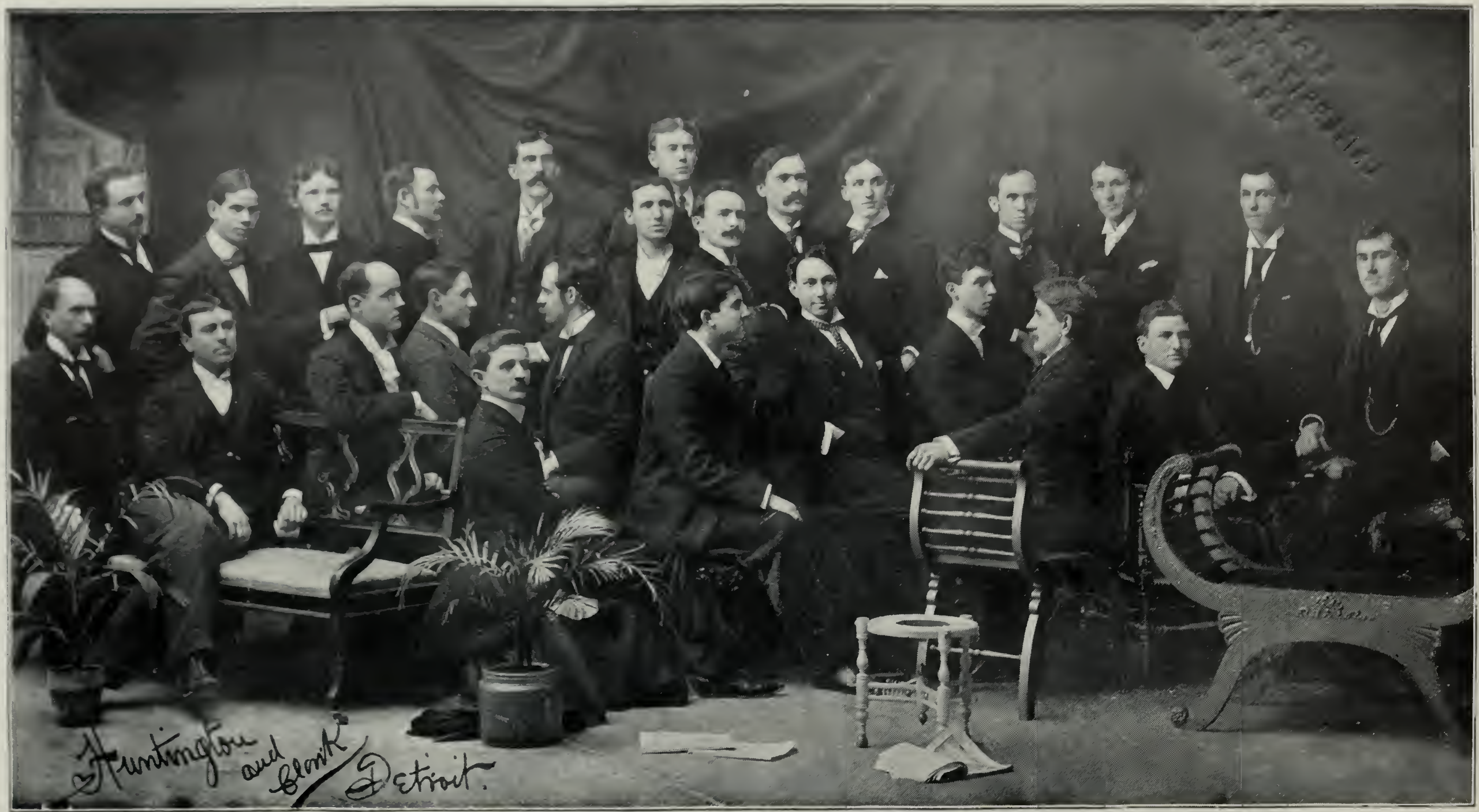
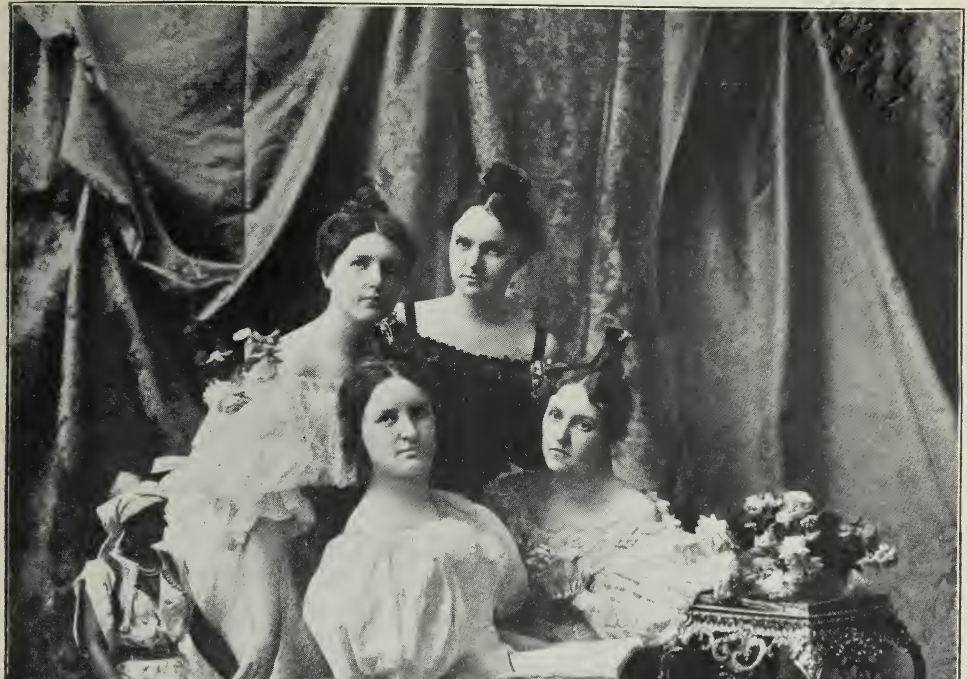

Huntington and Clark Detroit.

From "Studies from Leading Studios."

PLATE I.



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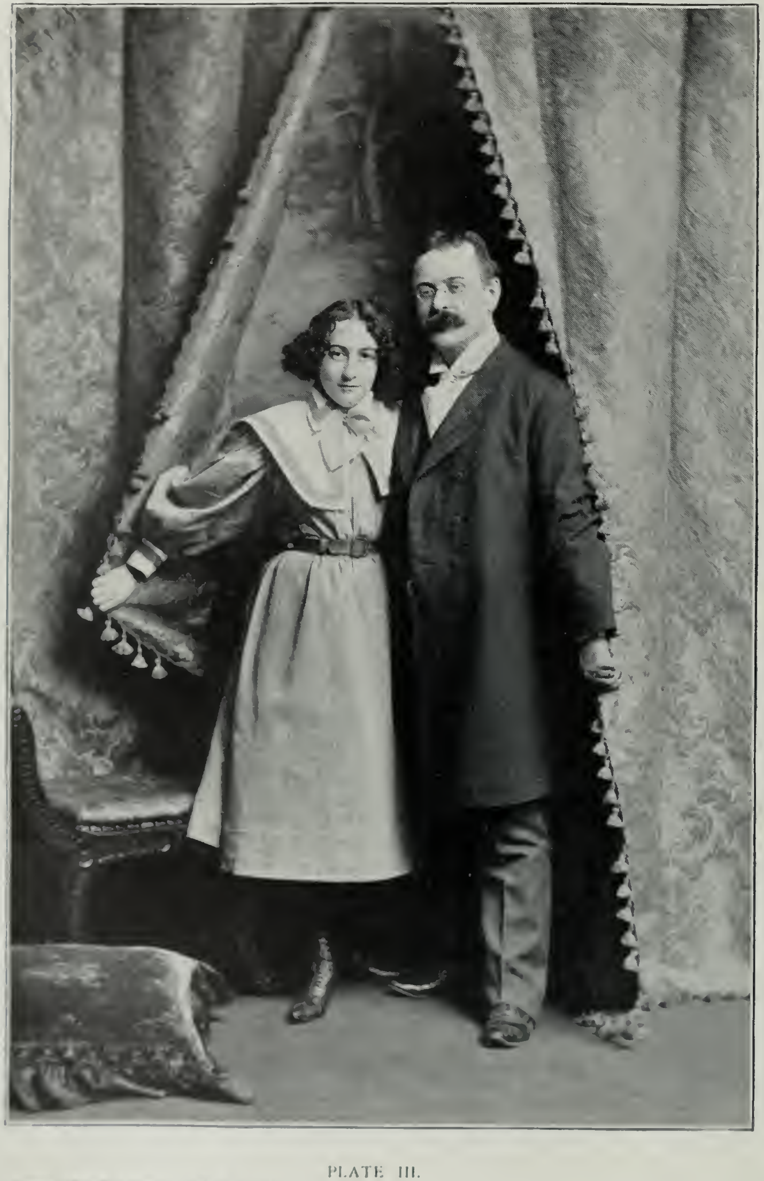
From "Studies from Leading Studios."



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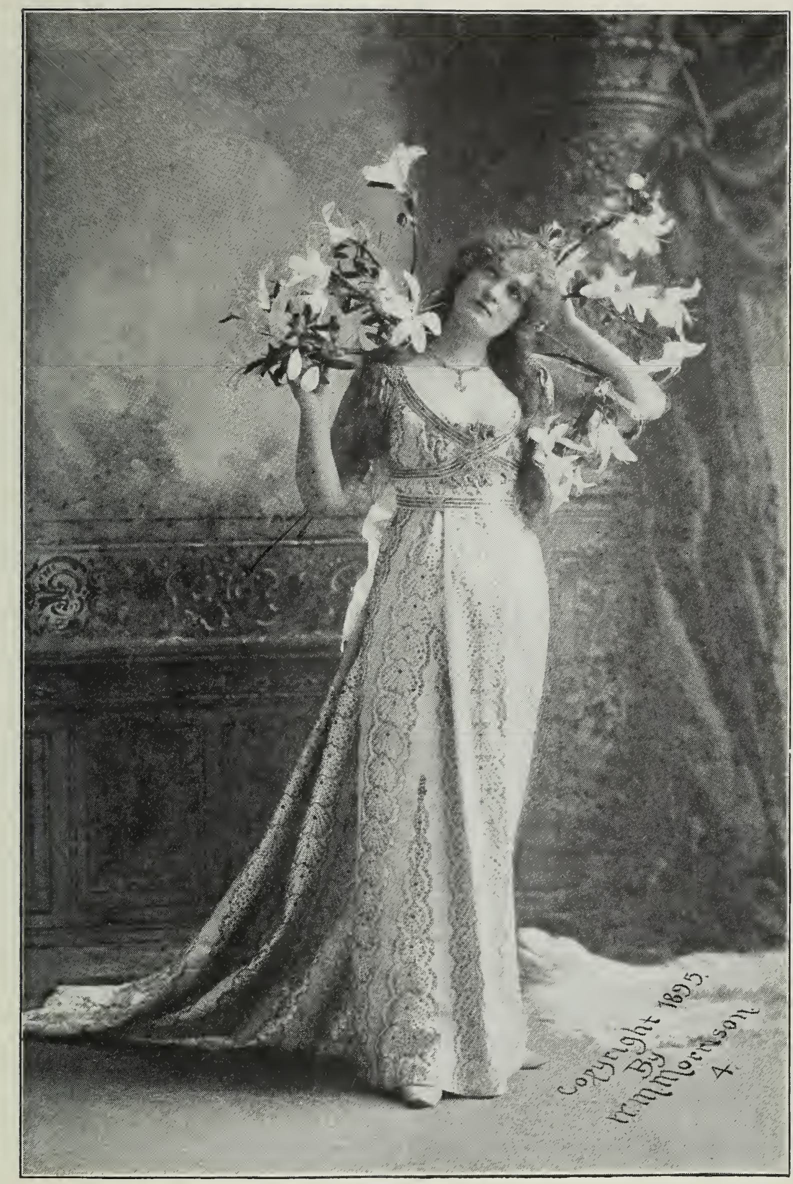
From "Studies from Leading Studios."



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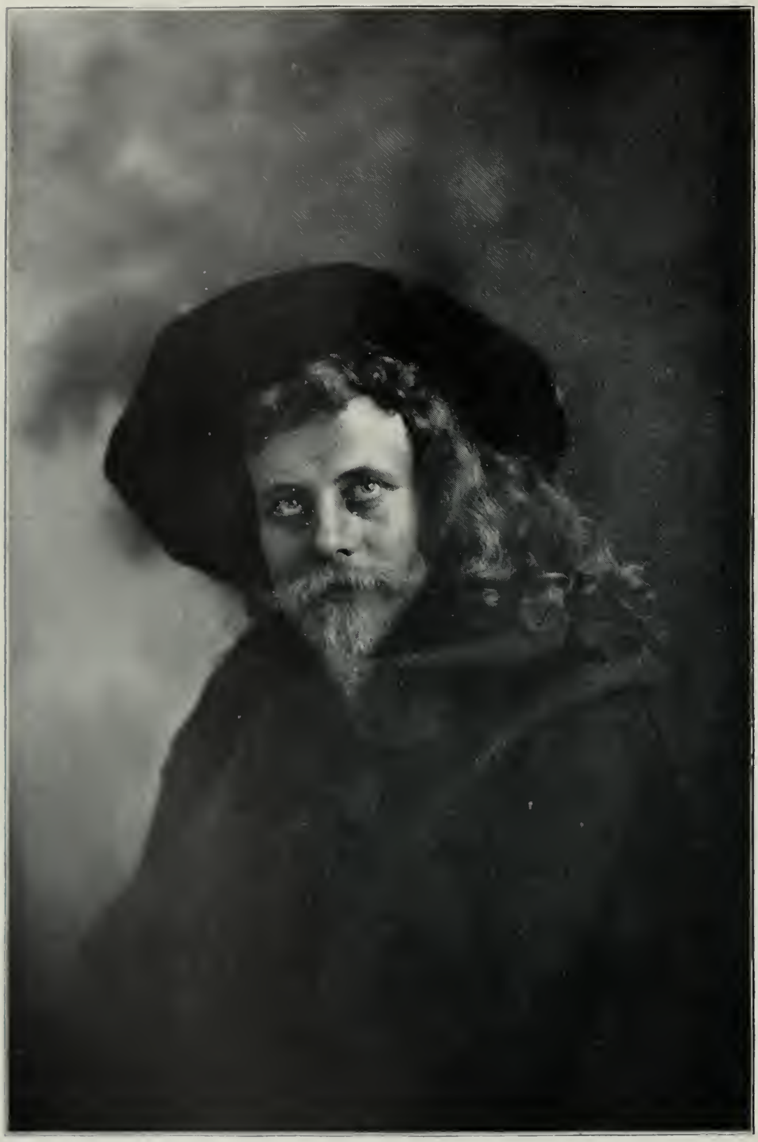
From "Studies from Leading Studios."



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From "Studies from Leading Studios."

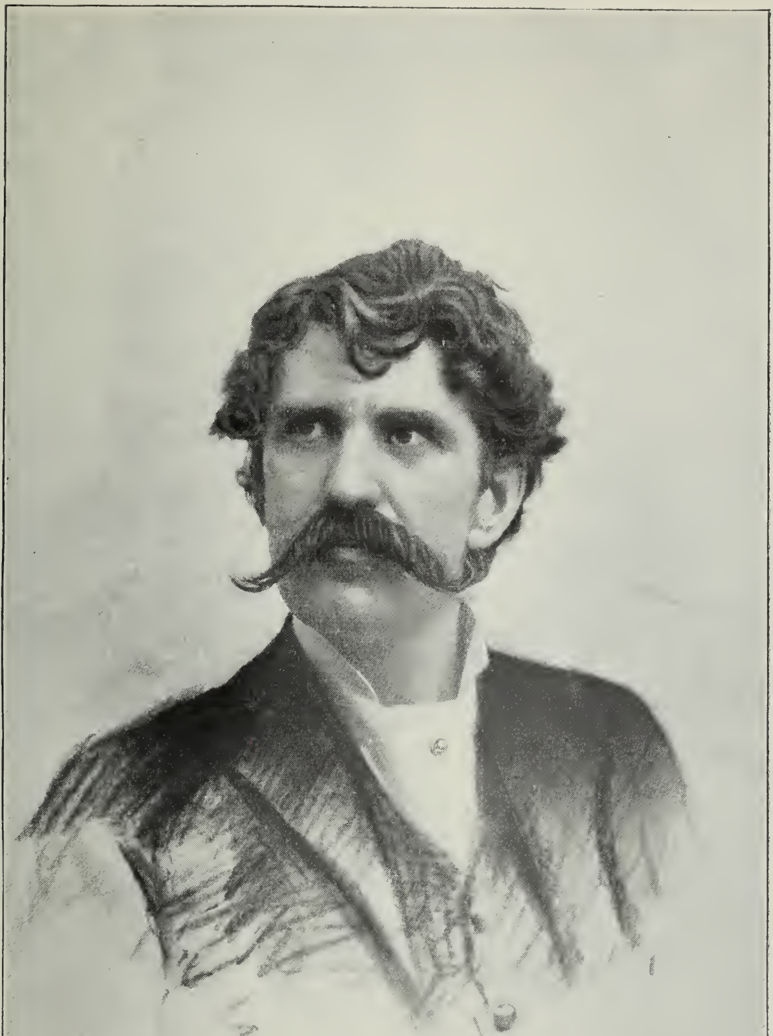


PLATE VI.

From "Studies from Leading Studios."

OUR ILLUSTRATIONS.

IN a recent issue we announced that Mr. C. Hetherington was engaged upon a new book, "Studies from Leading Studios," in which would be presented a series of object lessons that cannot fail to be of immense value to all interested in portrait photography. Through the kindness of Mr. Hetherington we are permitted to reproduce six of the illustrations from this book. Each of these is a whole volume of information, and should receive the earnest consideration of our readers. We append details of their production.

Plate I.—This shows how to handle a large group, and was made by Mr. Hetherington himself at the studio of Huntington & Clark, of Detroit, Mich. His plan of handling such groups is to first pick out seven or eight of the largest men and make a group of them in the center of the picture. Then, by adding small groups, he works from the center towards each end. In other words, his groups are made up of small groups. Observe that the floor line is nicely broken, and also the top line. Notice, also, the lack of hands and feet in the picture. The background, too, is eminently suitable, in that it does not in any way detract from the group.

Plate II.—A beautiful group, made by J. M. White, Port Huron, Mich. The posing of hands, heads and eyes is very good, and the subjects look as if interested in a good story, and momentarily distracted by a new-comer. The picture looks as if it were taken in a parlor.

Plate III.—This picture of our good friend, Mr. George Bassett, and his daughter Millie, is a nice suggestion for a group of two.

Plate IV.—A beautiful pose, by J. Leask Ross, formerly with Morrison, and now operator for the Taber Photo Studio, San Francisco.

Plate V.—A study by Hetherington, made with a single slant skylight, in Chicago, at the American Aristotype Company's School of Photography. The subject was placed about 10 feet away from the light, and the curtains were let up all the way. Then a 6 x 8 background was placed between the sitter and the light. The light was allowed to pass over the top of this ground and to fall on the subject. The exposure was fifteen seconds.

Plate VI.—Portrait of J. Leask Ross, by C. Hetherington. When this plate was developed, every mark upon it was visible on the negative. Take a piece of ground-glass the same size as the negative, place it in the plate-holder and focus. The subject must now keep the body still until the exposure is made. Take a piece of crayon and sketch the coat on the ground-glass. Now insert the plate in the holder, replace the latter on the camera, vignette (with a vignetter on front of the lens), the head and collar, make the exposure and close the plate-holder. Then focus on a piece of rough canvas and expose the same plate on this canvas and develop. Print on Aristo-Platino paper, and tone only with gold, enough to clear the whites. Fix well, and the resulting print will have the appearance of a red chalk drawing.

ELEMENTARY PAPERS—THE REDUCTION OF NEGATIVES.

WHILE it is, of course, desirable to endeavor to so regulate the process of development and to take such precautions during exposure that the negative image will not be, either as a whole or locally, too dense for practical purposes, it often happens that a reduction of the image is desirable. This reduction may be accomplished by reducing the thickness of the film of silver, and, therefore, its capacity to resist the passage of light. To effect this, either chemical or mechanical means may be resorted to. The chemical methods will, by reason of less liability of permanently injuring the films, and the greater ease in the attainment of the desired result, be preferred. The general principle employed requires the substitution of some less opaque material for the silver forming the image, or the partial removal of the silver by its being first converted into certain compounds which may be removed by suitable solvents. In the first case, in which the reduction of the negative may be accomplished by the substitution of some less opaque material, the most common method is by the immersion of the plate in a solution of bichloride of mercury. The plate is first well soaked in water, and immersed in a solution of bichloride of mercury, the strength of which is practically immaterial. The film is bleached white, the black silver of the image being replaced by a mixture of silver chloride and calomel, and the film is diminished considerably in opacity, the black opaque silver being replaced by the translucent mixture of the two chlorides.

A better method for reduction consists in the actual removal of part of the silver by dissolving away a fraction of the image. Thus, hydrochloric and nitric acid mixed with seven to eight times their bulk of water will slightly reduce a negative. These solutions have a strong tendency to remove the film from the plates, and on the first symptoms of such frilling, the plate should be removed from the solution.

A common method of reduction consists in transforming part of the silver composing the image into silver chloride by a weak solution of ferric chloride, copper chloride, chloride of lime and similar substances, this silver chloride being then removed by some solvent. Bartlett's reducer consists of :

Perchloride of iron	30 grains.
Citric acid	60 "
Water	1 ounce.

By its action on the silver image the perchloride of iron is reduced and silver chloride is formed, which can be removed by immersing the plate in hypo. With copper chloride the action is similar, and this is usually mixed with common salt which dissolves the silver chloride as it is formed.

There is no doubt, however, but that the best method of reduction is that which bears the name of Farmer's reducer, by which part of the silver of the image is converted into ferrocyanide of silver, and this is removed by hypo. The plate is well washed in water and is then immersed in a solution of hypo, to which a small quantity of potassium ferricyanide has been added. The following formula will serve as a guide to the making up of the solution :

Potassium ferricyanide	1 ounce.
Water	16 ounces.

Keep the above solution in the dark when not wanted. To reduce the negative, immerse it in a hypo solution made by dissolving 1 ounce of hypo in 16 ounces of water, to which has been added a small quantity of the ferricyanide solution. The ferricyanide solution readily undergoes decomposition, and is best made up freshly each time reduction is desired. Our method of working is to make a solution of hypo, made by dissolving 1 ounce in 16 ounces of water, and drop into it a few small crystals of red prussiate of potash. When these are dissolved, the solution is ready for use. The plate must be carefully watched, as reduction may take place quite rapidly. The subsequent washing must, of course, be a thorough one, to remove all traces of hypo from the film.

Eder's method of reducing is based on the conversion of part of the silver into chloride, iodide and cyanide of silver by mercuric chloride, potassium cyanide and potassium iodide, and the subsequent removal of the silver by an excess of potassium cyanide. The formula for this solution is as follows :

Cyanide Reducing Solution.

Potassium cyanide	20 grains.
Potassium iodide	10 "
Mercuric chloride	10 "
Water	10 ounces.

The reduction takes place slowly and is easily followed. The negative, after reducing, must be washed thoroughly. This latter process has, of course, the great objection of the poisonous nature of the ingredients of the reducing bath, and, all things considered, there is no more simple reducer than Farmer's ferricyanide and hypo solution.

The mechanical methods alluded to above consist in reducing the density of the negative by rubbing away part of the film. A pad of cotton wool is dipped in alcohol, and the parts in which reduction is desired are carefully, but firmly, rubbed down to the desired thickness. The reduction may be accelerated by powdered pumice or calcined flour, but in all cases of mechanical reduction there is no little danger of damage to the film. Indeed, it is well to employ mechanical methods only for local reduction where they are of more value than chemical methods.

It is true that local reduction may be accomplished by immersing the plate in water and with a camel's-hair brush painting the too dense spot with the ferricyanide and hypo solution and immediately washing the plate under the tap. This painting and washing should be continued until the desired reduction is effected. There is, however, a danger of reducing the negative outside of the part desired or of making an objectionable spot in the resulting print. Where, therefore, local reduction only is desired the mechanical methods should be resorted to. In some cases very fine local reduction is necessary, and this is best effected by drying the plate thoroughly and scraping away the surface with a mezzotint knife.

EXPERIMENTAL WORK: NEGATIVES FROM NEGATIVES.

DETAILS of results obtained by various workers in photography are published at frequent intervals in the photographic magazines, but are seldom confirmed or practical application made of them. For example, the researches of Professor Lippmann in the line of photography in colors, while conceded to be of value and of the greatest interest, have not been made the basis for further investigation by workers on this side of the Atlantic, and, indeed, have, so far as we know, been repeated only by Mr. R. Child Bayley, of London. We propose, in this and in subsequent articles, to give some account of published processes for repetition by such of our readers as have a real interest in photography, and we invite and solicit from those who repeat the experiments some account of their experiences, and, if possible, a specimen of the results obtained.

The advantages of being able to obtain a negative from a negative, without the necessity of making the intervening positive, are obvious—one operation instead of two, one plate only, and no danger of loss of delicate detail through the double operation. The method advocated is somewhat on the following lines: A plate is placed behind the negative in a printing frame, and exposure made as in making a transparency; or, if enlargement or reduction is desired, a copy of the negative is made in the usual manner in the camera. The plate is then developed, a transparency resulting. The image is now destroyed and removed by nitric acid. The plate is finally exposed to white light and again developed. The general procedure is as follows: After the exposure of the plate, it is developed in a very energetic developer—preferably one containing caustic soda—one of the most vigorous of alkalies. Development is continued until the image appears on the back of the plate. The developer recommended is the following:

Sulphite of soda	80	grains.
Hydroquinone	30	"
Caustic soda	30	"
Water	3½	ounces.

After development, the plate is immersed for two minutes in the following solution, to arrest all further action:

Boric acid	30	grains.
Water	3½	ounces.

It is then rinsed in water and brought out into white light, in which it is placed in a solution of—

Bichromate of potash	15	grains.
Nitric acid	½	dram.
Water	3½	ounces.

The black image becomes a reddish yellow, when the plate is thoroughly washed and immersed in a solution of 7 grains of caustic soda in 3½ ounces of water, until the image has entirely disappeared. The plate is now immersed in the developer previously used, and finally fixed in—

Hypo	½ ounce.
Sulphite of soda	75 grains.
Water	3½ ounces.

A thorough washing completes the operation.

EXAMINATION OF CATHODE AND RONTGEN X RAYS THROUGH COLORED SCREENS BY THE FLUOROSCOPE.

1. The cathode rays in an excited Crookes tube, viewed through a pale yellow screen, show increased brightness of the yellow rays.

2. Viewed through a dark violet screen, the cathode rays present a phosphorescent glow, similar to that in a low-volt lamp when held in the field of an induction coil.

3. Viewed through a green screen, the cathode rays present to the eye a light emerald green.

4. Viewed through a dark red screen, the cathode rays present a pale red, on the carmine tint.

The screens are of thin polished plate glass 1½ millimeters thick, coated with gelatine, colored with aniline dyes such as I use in making my photo-chromic screens.

Examination of Röntgen rays through plain glass and the aforementioned screens shows that both cut off or absorb fully 50 per cent. of the Röntgen rays from reaching the screen of the fluoroscope. Screens of the following colors were placed side by side with the clear glass, viz.: Dark violet, green, light yellow, and dark red ; and when in juxtaposition, it was impossible to recognize which was clear glass and which was colored, and the eye was unable to detect any color sensation when looking through the fluoroscope with the colored screens in close contact.

These experiments confirm me in the opinion I have held from my first dealing with the Röntgen X rays, that they are of the ultra-ultra violet, because I find they absorb the entire spectrum, while a deep violet screen absorbs all but the red.

It was early determined by Prof. Röntgen that the X rays could neither be deflected nor refracted, and I am not aware of any experiments having been made to determine the absorptive powers by the X rays of the colors of the spectrum.

John Carbutt.

Items of Interest

THE alleged new element, lucium, is said by Mr. Crookes to be a mixture of ytterbium, with a small amount of didymium, erbium and others of the rare earth metals.

It is said that gelatino-chloride prints that have faded may be restored by stripping them from their mounts and well soaking in water. The prints are then treated with an acid solution of hydroquinone and a few drops of silver nitrate solution, to which a little acetic acid has been added. As soon as about half the desired intensity is obtained, the prints are washed and fixed. It would seem that it would be well for those who suffer from faded gelatine prints to seriously consider abandoning this paper and using collodio-chloride paper, of the permanency of which there is little doubt.

Continued work with the X rays has shown that not only the diamond, but also all forms of amorphous carbon and all organic compounds rich in carbon, are very transparent to these rays, while chlorine, bromine and iodine are very opaque, and all their chemical compounds are opaque in proportion to the percentage of these elements contained in them.

At a meeting of a London photographic society Mr. Atkins exhibited a novel device for the development of rollable films. The film is placed around the inside of a glass tube, sealed at one end, the developer is poured into the tube, the open end of the latter closed with a rubber stopper, and the tube rocked from end to end. The development may readily be judged by holding the tube between the eye and the red lamp. The tubes were 8 inches long and 1 inch in diameter, and Mr. Atkins advised that the diameter be no more than that given, as the film is liable to collapse to the bottom of the tube.

Mr. Bullen, at the same meeting, mentioned a method of achieving the same result by using a deep dish and a glass rod, over the ends of which a couple of elastic bands had been slipped. The film was wound around the rod from end to end.

Perhaps the most practical method and the one which will be of greatest service to those engaged in the making of negatives and transparencies for the many forms of instruments showing animated photographs on the screen is that advocated by Mr. Mackie. This gentleman uses a separate tray, fitted with a series of pegs, around which the film is wound. In this way transferring from bath to bath is easily accomplished, and the film need not be removed until it is dry.

* * *

The British Journal of Photography for December 4th is an issue of more than ordinary interest. The above items are culled from it by us as being of considerable interest to our readers.

* * *

The lens for the enormous telescope being erected at the Wisconsin Observatory is said to be 3 inches thick in the middle and 1¼ inches thick at the outer edge of the crown glass, which weighs 205 pounds, while the flint glass weighs 310 pounds.

* * *

The best results are obtained from lantern-slides when the plates on which they are made have been backed to prevent halation. The application of the backing is easily accomplished, and the improvement of the image will justify the slight extra trouble.

* * *

Another important point in lantern-slide making is to make sure that there is no possibility of light penetrating at the joint in the printing frame back. Printing frames with tongued backs should be employed, and a pad placed between the plate and the back, to insure contact at all points. Negative, plate and printing frame should be well dusted, and the glass side of the negative thoroughly cleaned.

* * *

Negatives that have been stained yellow or that show yellow spots, as a result of alkaline development, may be cleared by immersing in a solution prepared as follows: Make up a 10 per cent. solution of sulphite of soda and add to it, drop by drop, sulphuric acid, until a distinct odor of sulphurous acid is perceptible. This is poured over the negative and allowed to act until the stains are removed. The liquid may be used repeatedly, a few drops of sulphuric acid being added from time to time.

* * *

According to Ackermann, a strongly reducing substance, which may be used as a developer, is obtained if 2 grams of sulphate of quinine, 8 grams of zinc dust, and 40 cubic centimeters of water are heated for ten hours to 100 degrees Cent. in a closed tube.

* * *

Bromide prints and transparencies may be changed in color by the following method. Two solutions are prepared:

No. 1.

Uranium nitrate (solution 1 : 10)	10 cubic centimeters.
Water	100 "

No. 2.

Red prussiate of potash solution (1 : 10)	10 cubic centimeters.
Glacial acetic acid	10 drops.
Water	100 cubic centimeters.

Shortly before use, these two solutions are mixed in equal proportions, and the well-washed bromide print or transparency is immersed in the solution. The color changes until finally a red color is produced. The print or plate is now washed and may be left this way or immersed in a 25 per cent. solution of sulphate of iron, in which, according to the tone given by the uranium bath, a greenish black, green or blue coloration is obtained.

* * *

With much regret we record the death of Colonel Thomas Pattison, father of Mr. Thomas Pattison, well known to all American photographers. Colonel Pattison had reached the ripe age of eighty-one, and had seen military service on both sides of the Atlantic. He held a municipal position in Chicago for twenty-five years. The remains were taken to Cincinnati for burial.

* * *

A complete X-ray laboratory has been fitted up by Mr. John Carbutt at his extensive dry-plate works, and tests were made recently to test the efficiency of the X rays as to their enabling the blind to see either light or objects. Two subjects were taken, one blind from birth, and the other blind from his thirteenth year. The first experiment was made with the sparks of a powerful induction coil, and no visual effect was observed by the boys. They were then seated in front of a Crookes tube giving off an abundance of X rays, but no sensation of vision was experienced by them. Then a fluoroscope was used, and while, on one occasion, one of the subjects thought he could observe a difference between the fluoroscope screen covered and uncovered, it was proved conclusively that this was due to imagination. The final results went to show that there is little hope of any benefit to the blind from the use of the X rays.

* * *

Death has again been busy among those connected with photography. It is our painful duty to record the death of Mr. John Heath, for many years in the employ of Messrs. E. & H. T. Anthony & Co. His colleagues and a large circle of friends will greatly miss him. We tender our heartfelt sympathy to his sorrowing relatives. From Cincinnati we learn of the death of Mr. David Knight Cady, for many years a dealer in photographic supplies, doing business under the name of P. Smith & Co.

* * *

In answer to our request for criticisms on the picture "In the Catskills," printed in our December issue, we have received the following:

"There is truth in Tony Weller's remark: 'Make them vish there vas more, Sammy,'' as applied to photography as well as letter-writing.

"A picture to make a lasting impression on one must appeal to the imagination, but the motive of the picture need not be left for the imagination.

"In the picture, 'In the Catskills,' one is at a loss to tell just where the point of interest lies. Is it the water in the foreground, of which there is entirely too much? Or the rocks, or the trees, or the distant mountain? At last one gives up in despair. It is a picture of a pretty bit of landscape, but it tells no story, or, rather, it tells the whole story. One has no desire to follow the stream to its source, or climb the mountain to see what is beyond." Marie Antoinette Daniels.

December 8, 1896.

"Were it my work I should say that it is distasteful, as a work of art, perspective somewhat out of joint, discordant in matters of harmony between front and middle distance, dominance of middle distance, with kingship over all to utter rejection of the same. Nevertheless, it will open many an eye of the Brotherhood of Amateurs and do a wonderful lot of good." Jas. H. Tripp.

An opaque white lantern screen for home use is made as follows: A wooden frame of the desired size is covered with thin napless and white linen, and a sheet of white paper pasted on the back to strengthen it. A mixture of the finest precipitated chalk or Spanish white is mixed with solution of glue, and sufficient Berlin blue is added to give it a bluish tinge. This is then spread in a thin film on the front of the screen with a brush. When dry, the screen should have a beautiful matt-white surface.

The latest newspaper sensation regarding the X rays is the announcement that blind persons are affected by them to a sufficient extent to justify the hope that some device may eventually be perfected that will serve as a substitute for our eyes. Too good, we are afraid, to be true! But the possibilities of the X rays have not, we believe, been exhausted. Continued work with them will undoubtedly bring out new applications. It is a matter for congratulation that the sensational epoch with reference to them has been passed and real work begun.

The beautiful lantern slides in colors shown by Mr. Ives, and the reports of the work of Dr. Selle, have aroused considerable interest in the subject of photography in colors as applied to transparencies and slides for projection. In the paper by von Hübl, printed in this issue of the Bulletin, details of the working of the process are given.

The half tone, "A Suggestion from Germany," is reproduced from a collotype print and is of value as a hint in the arrangement of prints for exhibition or show-case purposes. The 1897 Convention of the Photographic Association of America is not far distant, and we hope to be of considerable service to all who contemplate exhibiting.

PHOTOGRAPHIC ODDITIES.

THE odd and ingenious side of human nature has been well displayed in the photographic art, in which there are so many opportunities for its exercise. Almost every branch of science can be made useful in photography, and such application is often effected by some eccentric genius in a most unexpected manner.

In the line of optics a device has been contrived for altering the proportions of the subject in the picture at will, so that long faces are shortened, large mouths made small, and fat people are made slender. A sheet of glass is placed in front of the sensitive plate, and is provided with raised portions over the parts of the subject which it is desired to magnify, and with depressions where a reduction of size is wished for.

To produce sculpture by means of photography, the following process has been devised. The subject is placed on a platform surrounded by a circle of cameras, and photographs are taken giving the profiles from these different points of view. A cylinder of wood is then divided into segments by vertical saw-cuts (Fig. 1) and the number of segments is made to correspond to the number of photographs. Each pair of diametrically opposite segments is then sawed to the shape of the profile in the corresponding photograph, and when the segments are put back in place a reproduction of the subject results.

In another photo-sculpture method, the subject is surrounded by four cameras at equal distances apart, and four photographs are taken. The mass of clay which is to form the statue is then placed on a table which also supports the four photographs (Fig. 2) in vertical position, the planes of the photographs running through the center of the clay. Each point on the subject is shown in at least two of the photographs, and by means of two pantographs the precise location of the point in the clay is determined from two of the photographs. In this manner all the principal points are located; and, theoretically at least, a very good likeness would result.

Six or eight years ago a developer was put on the market intended for use in broad daylight, after the plate was fully immersed. It con-

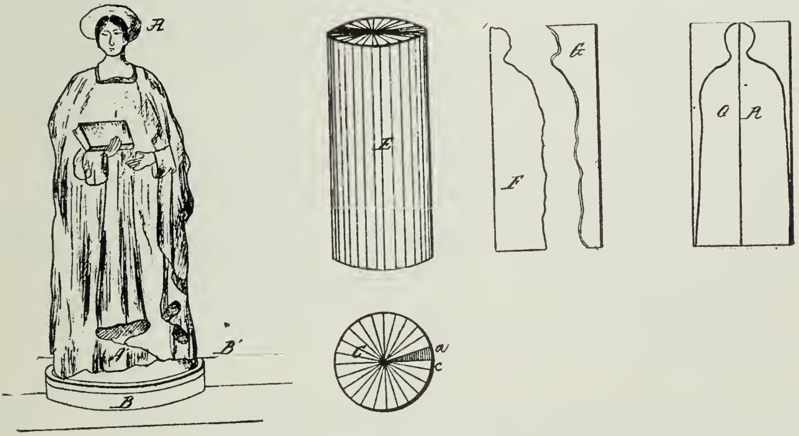


Fig. 1.

sisted of a developer, well known in its ordinary form, to which had been added an aniline dye, so that no actinic light could reach the plate through the developer. The plate was put into the developer in the darkroom, or, by means of a special plate-holder, it could be immersed in daylight, the plate-holder being so constructed that a light-tight connection could be made between its mouth and the developing tray.

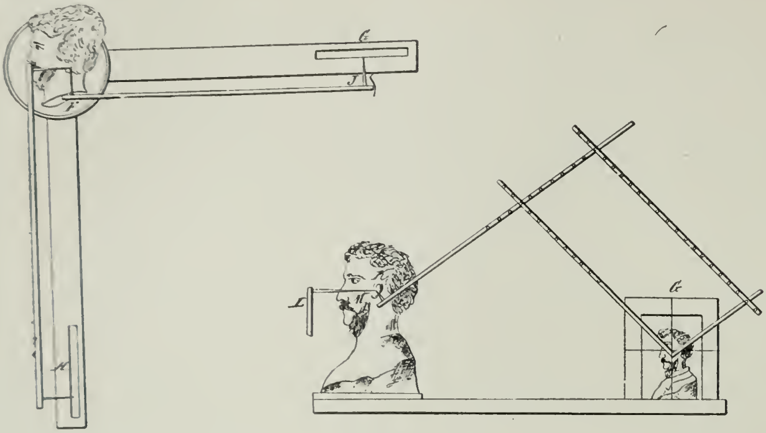
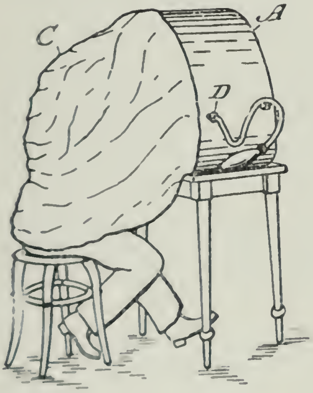


Fig. 2.



Compressed air has been applied to many uses, and now it is brought into service in connection with the darkroom. There are pneumatic tires, pneumatic horse-collars, pneumatic bustles, pneumatic shoe soles, pneumatic saddles, and now we have the pneumatic darkroom (Fig. 3). The walls of the darkroom are formed of two sheets of rubber cloth united at intervals by strips of the same material. The structure is made air-tight, and, when inflated by means of an air pump attached to the outer wall, will stand up with sufficient strength for practical purposes. When deflated, it can be rolled up into very compact form.

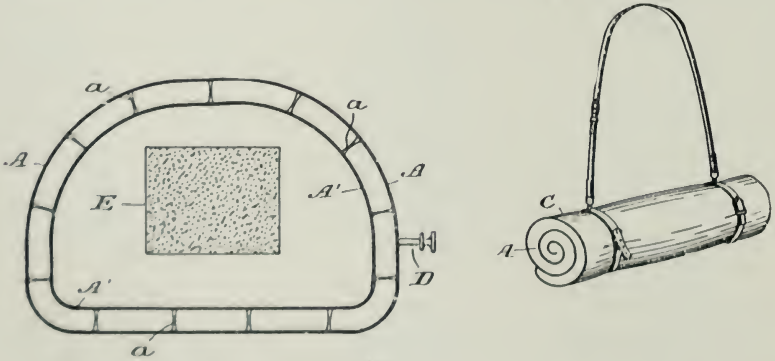


Fig. 3.

To save the trouble of mounting and of handling paper that curls and tears, a sensitized mount was lately placed on the market. The card, which would ordinarily have the print mounted upon it, is made water-proof so that it is entirely unaffected by the baths and washing, and a sensitized coating of collodion is placed on the face. The card is placed in the printing-frame, and is printed, toned and washed like the ordinary sensitive paper.

In Fig. 4 is shown a background capable of producing any tint from a pearl-gray to a black. There are two discs mounted on a horizontal shaft, the front one having four sectors of black material, with open spaces between them. The rear disc has four black and four white sectors, placed alternately. Clockwork is attached to the frame work by which the discs can be revolved, and a clutch controlling the movement can be managed by a cord running to the camera. By placing the black sectors of the front disc over the black sectors of the rear disc, when the shaft revolves, a pearl-gray effect will be produced. When the black sectors of the front disc cover more or less of the white sectors of the rear disc, a darker effect is produced.

There is a paper for producing photographs in natural colors from one negative. The negative is made on an ordinary orthochromatic plate. The paper is coated with three layers of bichromated gelatine, the first of which is colored red; the second is dyed yellow, and the third is blue. The printing is done through the paper; *i. e.*, the paper is placed with its back to the negative. The red part of the negative being densest, the light will only have strength enough to act on and render insoluble the red layer of gelatine, this being nearest the negative. The less dense parts of the negative formed by the yellow light

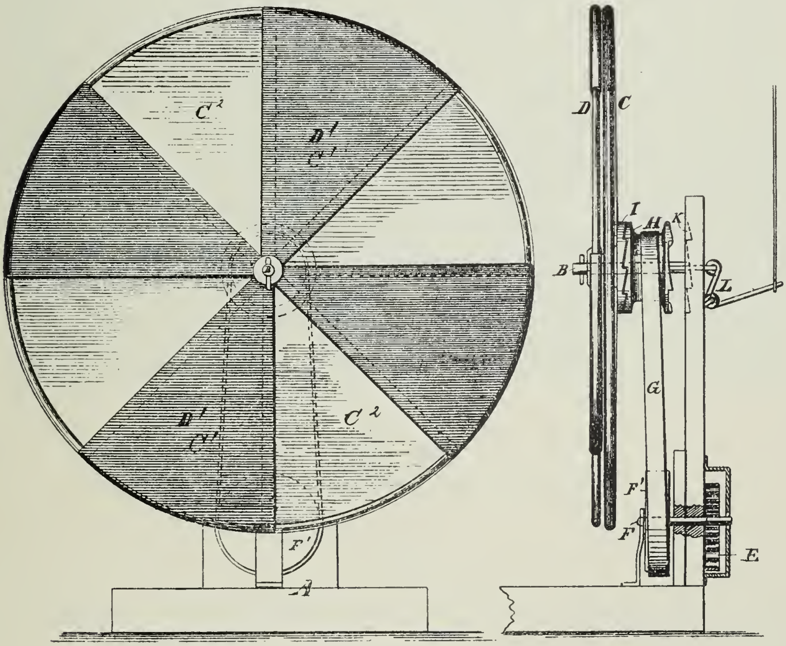


Fig. 4.

will allow the light to penetrate to the yellow layer, and the least dense parts resulting from the blue light will allow the light to reach the blue layer of gelatine. When the print is washed, the gelatine remains which corresponds to the light which formed that part of the negative.

Sometimes the amateur wishes to be one of the group which he is to photograph, and a device has been invented which will open and close the shutter for either a time or snap-shot exposure after being started by the photographer. The contrivance (see Fig. 5) consists of a disc having two projections, which strike on the push-button of the shutter as the disc is revolved by a spring, which pulls on a cord running around the disc. The disc has a third projection, which carries a hook over which fits a loop in an inflammable cord, the other end of which is caught on a stationary hook. The cord has two loops, one longer than the other. When the end of the cord is lighted, it burns until it reaches the first loop, and this allows the hook on the disc to jump to the end of the second loop, thus allowing one projection to open the shutter. When the burning reaches the second loop, the disc completes its motion and closes the shutter by a second push on the button. For snap-shots, only one loop is used, and a disc having only one projection beside the hook is substituted. A wire spring holds the burning cord up from the camera when the cord breaks.

This article would hardly be complete if it failed to mention an ingenious expedient to prevent tampering with a loaded hand camera. The removable cover of the camera is held in place by a lock, which can only be operated by pressing on the finder.

When it is considered how completely every detail of process and apparatus has been worked out for the photographer, it must be admitted that he has had his share of the labor of the skillful and ingenious.

E. J. Prindle.

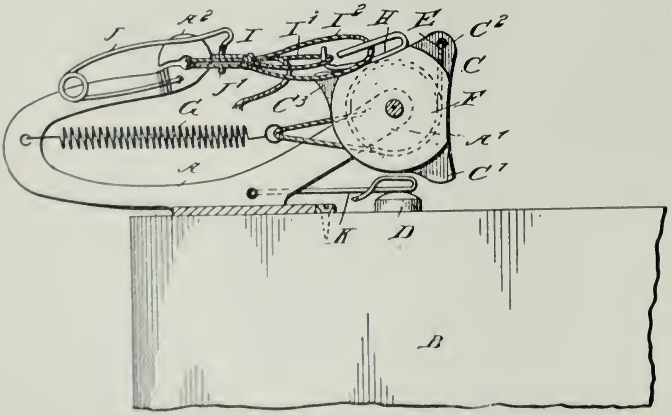
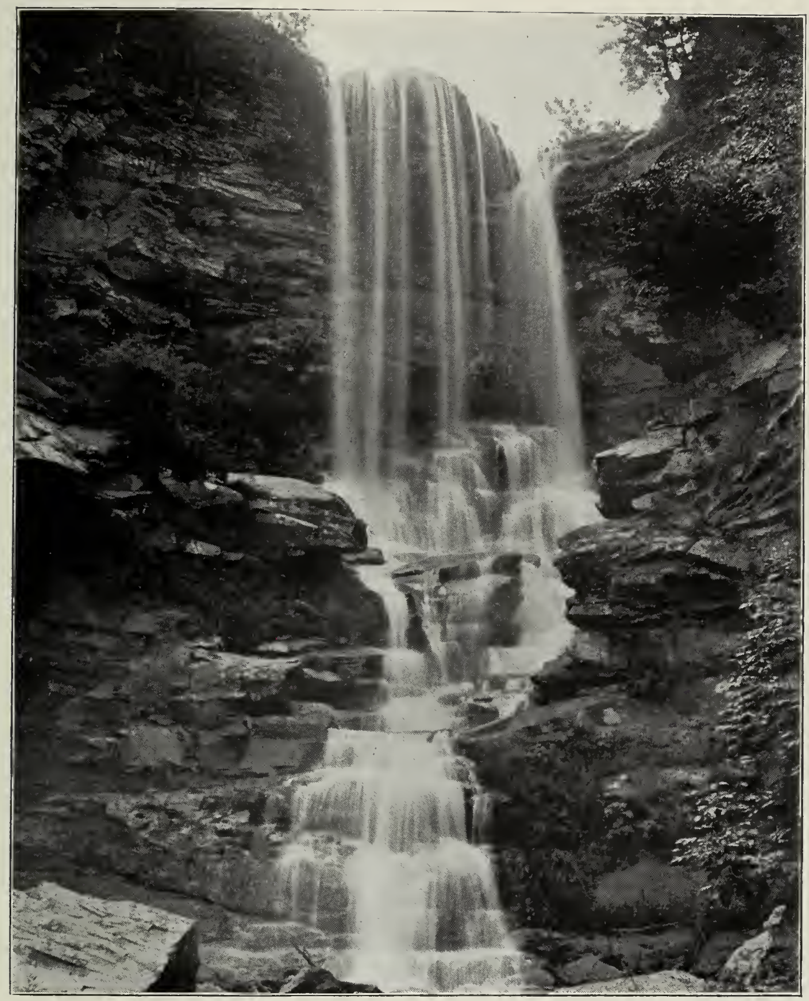


Fig. 5

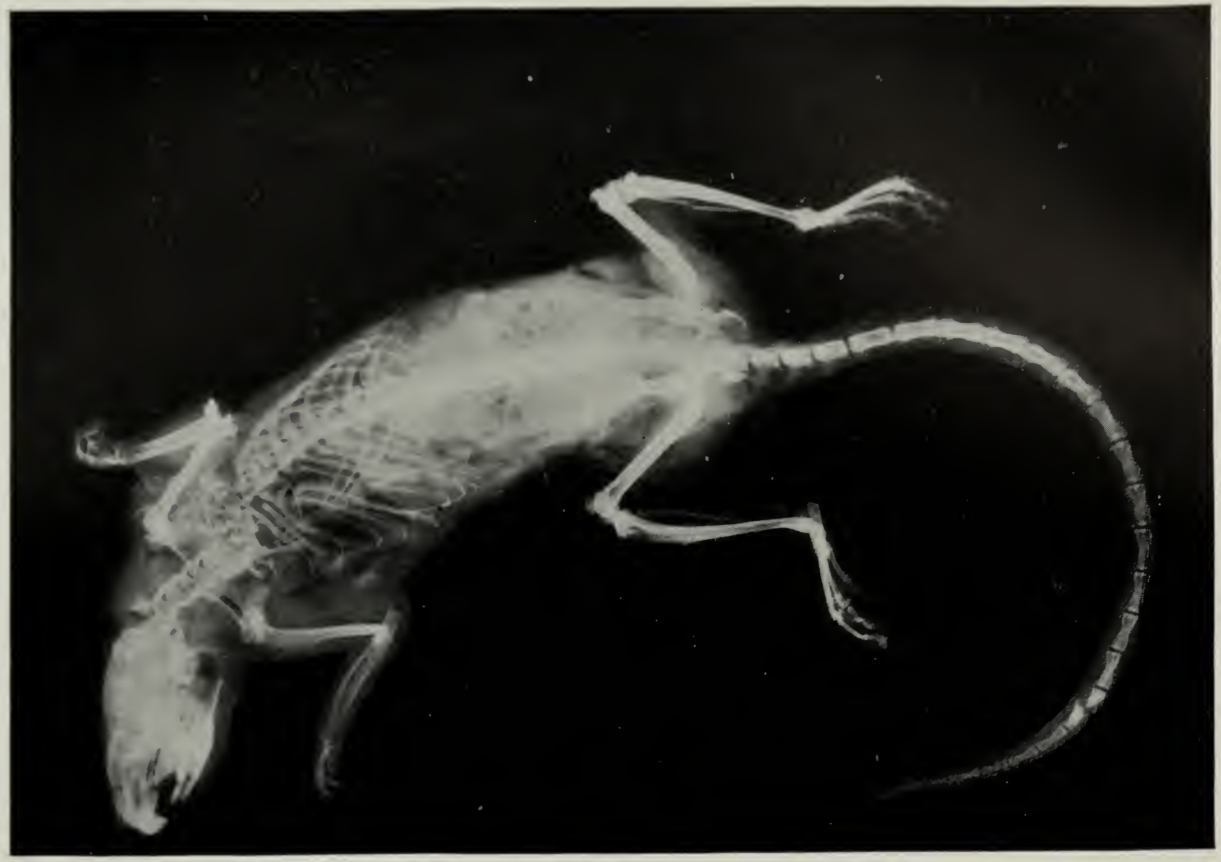
Our subscription list is growing rapidly, but our printers have yet facilities for printing more copies than we can place. Our readers can help us considerably by asking us to send sample copies to friends known to them to be interested in photography.



PHOTOGRAPH BY A. ROLLE.

IN THE CATSKILLS. No. II.

ENGRAVED WITH RICHARDS' CROSS-LINE SCREEN.



RADIOGRAPH

BY JOHN CARBUTT.

DISRUPTED ANATOMY OF A RAT AFTER AN ENCOUNTER WITH A TERRIER.

parts gelatine ; after solidifying, it is washed in cold water, and is used for the production of the pigment paper to coat the films. The bromide of silver, not playing here the part of a light-sensitive substance, but solely that of a pigment, the preparation of the emulsion as well as the coating of the paper can be done in broad daylight.

The celluloid films intended for the picture are soaked in cold water, and their edges fastened to glass plates with strips of paper. After drying they will lie completely flat, and to prevent the paper strips from loosening in the subsequent treatment, these are coated with wax. Upon the film so prepared, the bromide of silver picture is then transferred.

If the three films are treated in a uniform way, the pigment paper intended for printing is cut from the sheet in equal direction, and if all circumstances affecting a stretching of the picture in the transfer are considered, three pictures of equal dimensions will, as a rule, be obtained. But the success of the process is, in this regard, always questionable, and, with regard to an exact fitting of the part-pictures, the printing upon bromide of silver-isinglass films is to be preferred under any circumstances.

The bromide of silver pictures must be of a thoroughly uniform character, and to enable a control in this regard during the operation of coloring, it is advisable, when the photographic original is taken, to place alongside of the same a scale formed of neutral gray papers of different brightness. This gray scale has to show the same appearance in the three negatives and the three prints.

The bromide of silver and the reduced silver which may be there is removed from the pictures with a solution of hyposulphite of soda and red prussiate of potassium, after which they are washed and colored. For the coloring of the pictures three pigments of equal distance from each other in the color scale are to be selected; and, as yellow cannot be a mixed color, the color system yellow, blue-green and purple is to be used. Corresponding with these colors, the negatives are to be produced. They must be very delicate, and should have been sufficiently exposed, with good and strong details in the shadows. If the negatives are too strong or hard, they are useless for the process, causing spotty shadows without detail and wrong in color.

The color process does not consist in a mechanical absorbing of the color-matter solution, but there is a kind of chemical combination of the gelatine with the color matters. This combination is, of course, a very loose one, longer washing decolorizing the gelatine again. The following appearances seem to prove a chemical combination :

1. Even very diluted color-matter solutions will produce a very intense coloration of the gelatine, if subjected to prolonged action.

2. The tar-color matters, by reason of their chemical character, have a very diversified behavior towards gelatine. Many of them will give no coloration at all in diluted solution ; others will color in presence of an acid, and others, again, only when their solution has an alkaline reaction. The gelatine plays, therefore, here the part of an acid, and there the part of a base.

In general, the coloring with an acid color matter is more successful than with a basic one ; therefore, the employment of the former is to be preferred.

Eosine and rhodamine are also applicable in neutral solution.

From a great number of color matters the following were selected as suitable in tone, and for the coloration of gelatine pictures.

For the red picture, erythrosin in neutral solution.
For the yellow picture, naphthol yellow—*S* in acid solution.
For the blue picture, genuine green bluish* in acid solution.

Regarding the last-named color matter, it should be remembered, that under this name different green-tar-color matters are on the market, which have either no coloring effect whatever, or give a different tone, and only the preparation made by F. Bayer & Company, of Elberfeld, is satisfactory so far as I know.

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*Echt blau-grün.

One gram of these color matters is dissolved in 200 cubic centimeters, and is kept in stock as concentrated solution. For use, this is diluted with ten to twenty times its volume of water, and to the yellow and blue liquid from 5 to 10 drops of glacial acetic acid are added to each 100 cubic centimeters ; to the yellow liquid also a few cubic centimeters of saturated chrome-alum solution may be added. The more concentrated the color-matter solution is, the quicker it will act, but the picture will also become so much flatter. A very diluted solution should be left to act for several hours, but it will furnish, then, very brilliant pictures with rich details. If the colored picture is treated with water or, better, with a very diluted borax solution, the color matter will again be removed from the gelatine and the least colored parts will bleach first. Supported by these facts it is therefore in the operator's power to impart any character to the pictures, and to change them, until they show the desired effect when laid on each other.

The gelatine picture to be colored is laid upon a horizontal glass plate, after drying, and flowed with the color-matter solution in such a way that this covers the whole picture. Small pictures are put into a dish filled with the solution. If, after a few minutes the whole design appears pretty strongly, and almost evenly colored, the solution is diluted with two to three times the volume of water, and then it is left to renewed action. If the coloration was already very intense, the picture is washed for a short time, and then the coloration is continued with a diluted solution. In this way the operation is continued until the picture possesses the desired character, when it is rinsed in water, to which are added a few drops of acetic acid. The remaining liquid is removed with blotting paper, and it is then left to dry.

With a correct condition of the negative and suitable printing time, the coloration will mostly be completed in one bath, without the necessity of any extra manipulations. After about an hour the picture will have the desired appearance.

When the pictures are put together, by way of trial, this should be done carefully, of course, being governed principally by the appearance of the gray scale, but it must be remembered that the coloration of the gelatine changes considerably during drying. The blue picture assumes a more greenish tint, and the red picture will have a more bluish tone. Only the yellow picture remains almost unchanged. It is therefore advisable to proceed in the following way : First the blue and red pictures are colored in such a way that after drying the gray scale will show in all grades a uniform blue color, which is complementary to that of the selected yellow. This is the color of an alcohol cyanin solution moderately diluted. The third picture is then colored yellow in such a way that it will be supplementary to the blue scale in gray.

After drying, the films are cut from the glass plate and mounted one on top of the other in a suitable way upon a new plate.

This process, as described, differs essentially from that worked by Dr. Selle, but the results of both methods with regard to the reproduction of the colors may be considered to be the same.

Finally, I might remark that all the colors in these pictures will change in a different illumination. A picture toned by daylight will, with yellow illumination, show essentially different tones. This appearance is particularly observable with the gray, which in lamplight has a yellow-brown appearance.

A. Freiherr von Hübl.
Translated by
Henry Dietrich.

We would remind our Pennsylvania readers that the first annual convention of the Photographers' Association of Pennsylvania will be held at Harrisburg, Pa., on the 26th to 28th of this month. Application for space must be made to G. Taylor Griffin, Wilkes-Barre, Pa., prior to January 10th; exhibits must be delivered in Harrisburg, charges prepaid, by January 23d, addressed to J. B. Schriever, Russ Hall. M. R. Hemperley, of Philadelphia, is the President, and E. E. Seavy the Secretary.

THE INVENTOR OF THE HALF-TONE PROCESS.

"THE International Annual" is a splendid book, well printed, well illustrated, and, what is by far the most important, it contains many interesting and instructive articles.

Among the contributions, I have read with surprise that of Mr. Horgan, who attributes the invention of the half-tone engraving process to General Von Egloffstein. This is an error. The inventor is Mr. Berchtold, a Frenchman, who took a patent for that very process on the 14th of December, 1857. Two years later (April 15, 1859) he sent a paper, describing the manner of operating, to the Société Française de Photographie, which was recorded in the *Bulletin* of the Society (Vol. V, pp. 116, 211 and 265). An abstract of it was published in the *Liverpool Journal*, and reprinted in *Humphrey's Journal* (Vol. XI, 1859, p. 100).

Such errors often happen; for example, the excellent intensifying process for line work, etc., devised by William Campbell (1876) is now attributed to Monckhoven; the fuming process also devised by Campbell (1858) was credited to the late Henry Anthony, who never made any claim for it, and was satisfied with having originated the invaluable alkaline development (May, 1862); again, the Farmer's reducing process (1883) is now sometimes credited to Prof. Burton, etc., etc.

I send you the half-tone ruling process of Berchtold as described by himself. I think you should publish it. It is a historical document of great value, containing a manner of forming a very fine granulation, which can find its application in litho-photography.

BERCHTOLD'S HELIOGRAPHIC ENGRAVING PROCESS.

Mr. Berchtold first states that he was led to devise this process in order to obtain an exact engraved copy of a photograph without the aid and fancy of an artist; that he specially uses it for engraving in intaglio, but, as it permits one of etching quite deeply, that, by printing from a negative, it can be employed to obtain plates engraved in relief to be printed typographically like wood-cut blocks; and, furthermore, that the process can be adapted to litho-photography in half-tone. He also says that the sensitive film for the plate of metal may be a bichromated compound, but that, for his application of the process to intaglio engraving, he uses the bitumen of Judæa. He then proceeds to the description of the process :

"When a plate of metal, cleaned and well polished, is coated with a varnish of bitumen of Judæa, and, after it is dry, exposed to light under a negative, the image is not visible after the exposure. It appears only when the plate is washed with a suitable solvent ; but the acid, by then biting it in, would not preserve the gradations of the tints, which are due to the more or less thickness of the varnish.

"Consequently, before washing the plate, I place upon it, in lieu of the negative, a glass plate coated with a substance impermeable to light, and covered with a multitude of very fine parallel lines close together, made by means of a pointed steel tool, which removes the substance without cutting the glass ; then I expose again to light for a counted time. Wherever the bitumen has been rendered entirely insoluble during the first exposure, no new action takes place. The lines are formed, on the contrary, where the negative was not impermeable, and with an intensity which decreases according to the degree of exposure, or of the impermeability of the varnish.

"Now, the ruled glass being changed in position by placing it, for example, at right angles, I expose for a period half less ; then, repeating the operation by placing the glass plate in the diagonals of the squares obtained, and even in the positions intermediate to these, and each time exposing for a period less than the precedent, I make a work pretty well resembling that of the graver.

"This work, entirely subordinate to the action of light, is consequently multiplied exactly in the inverse ratio to that which the bitumen has undergone during the first insolation.

"Whenever the action has been first complete, *i. e.*, in the lights, no new lines (cuts) are formed, notwithstanding the successive exposures. On the contrary, they manifest themselves so much more the closer from the half-tints to the deep shadows, that the plate must retain more ink. Entirely free from lines, the high lights remain pure ; the half-tints, with a number of lines (cuts) necessarily proportionate to the intensity they should have, keep their value, and, lastly, the deep shadows having retained the whole of all the lines (cuts) resulting from the different insolations, reach the black.

"To simplify these operations, I use a glass plate ruled in the manner I am going to describe, and I do not doubt that finer results can be obtained with a greater facility :

"By means of a glass plate mechanically ruled, similar to that above employed, and using it as a negative, one makes on a glass plate albumenized, or prepared by the dry collodion process, a proof of these lines crossed in different ways, and by modifying the exposure times some may be made blacker than others. This transparent screen placed only once on the metallic plate after the first insolation, which forms the image, will replace the successive exposures in the different ways and produce the same result with greater regularity and precision.

"This screen once made, and the crossed lines forming a scale of tints well graduated, serves indefinitely and forms a sort of photographic graver, which, in one operation, by means of the luminous action, gives the means of transforming a photograph into an engraving.

"I have tried other means, also having for their object the accomplishment of this result, either on metallic plates or on the clichés. They are all described in my patent of the 14th of December, 1857."

Is it not incredible that such a process fell into oblivion for nearly thirty years?

P. C. Duchochois.

A REVERSING MIRROR.

With pure materials and scrupulous cleanliness in the operations, it is not a difficult matter for the engraver to make a reversing mirror for himself, writes Thomas Huson in *The Photogram*. The glass preferred is German plate, about $\frac{1}{8}$ of an inch thick. A piece free from surface flaws and lines is selected, and the sharp edges removed by grinding with emery powder. The emery being washed off, both sides of the glass are rubbed with a tuft of cotton saturated with a strong solution of caustic soda. After again washing, the glass is rubbed with a few drops of strong nitric acid, is well washed and finally rinsed in distilled water. The glass is then laid in a dish and covered with distilled water, to keep it free from dust. A second dish, larger than the former, is cleaned, and three pieces of cork are laid on the bottom, to serve as a support for the first dish. Two pieces of glass rod sufficiently long to reach from side to side of the smaller dish are required, and one end of each piece should be bent at a right angle, to prevent them rolling about. The silvering solution is prepared as follows, the quantity given being sufficient for a 6 x 9 mirror:

Take 100 grains of nitrate of silver, dissolve in 2 ounces of cold distilled water. Dissolve 2 ounces of Rochelle salts in 4 ounces of cold distilled water, add this to the solution of nitrate of silver. A curdy white precipitate is at once thrown down. Now add, drop by drop, stirring vigorously the whole time, strong liquor ammonia. This will gradually dissolve the precipitate, and probably, towards the close of the operation, that is, when the precipitate is nearly all dissolved, the liquid will become rather smoky and brownish in color. Be very careful not to add an excess of ammonia; in fact, it is better to leave a small quantity of the precipitate undissolved.

Now add 6 ounces more distilled water, and pass the whole through a filter.

The Swedish filter paper is the best and most convenient to use, as it is very pure, and allows the liquid to pass through very quickly.

While this operation is going on (it will only take a few minutes), arrange the two dishes, the smaller inside the larger, supported on the three pieces of cork, and in the inner dish the glass to be silvered, supported at its two ends by the glass rods, the distilled water being still in the dish.

The silvering solution being ready, take the smaller dish with both hands, one at each end, and, pressing the mirror-glass firmly against the rods with the thumb of each hand, quickly pour away the distilled water. Careful draining is not necessary.

Now replace the dish on the three corks, and carefully pour in the filtered silvering solution. Hold the plate in position again with the thumbs, as before, and rock the dish quickly several times, to mix the few remaining drops of distilled water with the silvering liquid. See that there are no bubbles left on the under surface of the glass, as it is this surface which is to receive the silver for the mirror. If there is enough silvering solution to cover the glass all over, both surfaces will receive a deposit, but the one facing the bottom of the dish is invariably the more perfect of the two.

The glass being in position as above, fill the outer dish with boiling water. The effect of the heat on silvering liquid is at once apparent, it rapidly darkens and becomes opaque and muddy-looking from the deposit of metallic silver. Do not move either of the dishes, but syphon off the hot water from the outer one, and continue to replace it with fresh portions of boiling water, so as to gradually raise the temperature of the silvering solution to about 100 or 120 degrees Fahr. It will probably take from ten to fifteen minutes to do this, and by that time most, if not all, of the silver will have been deposited. Take out the mirror, being careful not to touch the face, that is, the under side, as explained above, and give it a good rinse with warm water. Now wash well under the tap for five minutes, letting the water run over back, front and side of the mirror, so as to get rid of all soluble salts, and, finally, rinse with distilled water. This completes the silvering operation, and the mirror should be put in a rack to drain and dry. In a warm current of air, this will soon take place.

If the operation has been successful, you will find a beautiful deposit of silver, perfectly even, without marks or stains of any kind, but with a slight bloom. To remove this and complete the mirror, all that is necessary is to rub it evenly, from end to end, with a pad of chamois leather (with a stuffing of cotton-wool) on which has been rubbed a small quantity of the finest rouge, such as is used by jewellers and silversmiths. It is safer, when preparing the pad, to give it a good rubbing on a plain glass in the first instance, so as to break down any hard particles of rouge which scratch and spoil the mirror. The pad should be kept by itself in a box with a closely fitting lid, and used only for the one purpose.

In conclusion, let me again emphasize the points which will ensure success; they are purity in the materials, and scrupulous cleanliness in all the operations.

For line work on dry plates use double the quantity of pyrogallic acid, if that developer is being used, and sufficient bromide of potassium to keep the lines absolutely clear. Distinct and sharp lines are best obtained by using small diaphragms in the lens.

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All matter for our February issue must reach us on or before January 18th.

THE BICHROMATED FILM IN PHOTO-MECHANICAL PROCESSES.

The foundation for the production of a good photo-mechanical print is not always a good negative, but, to a far larger degree, it is a faultless printing plate. Of the older processes, collotype deserves our first consideration. The bichromated film plays here two important parts, by serving as printing medium and simultaneously also as printing plate. It requires, therefore, the greatest attention, if mistakes are to be avoided in both directions.

One of the most generally known defects in the *lichtdruck* process is the so-called raising of the printing plate. This takes place most easily if a high temperature and much moisture act together upon the film; therefore, more in summer than at any other season. The moist gelatine melts partly, causing thereby a loss of the fine tones. At a temperature of only 6 degrees and a moisture of 20 degrees, only a few and hard prints will be obtained, and frequent moistening is necessary. A high temperature of 21 degrees and a medium atmospheric moisture produce easily the formation of a general tone over the whole picture, and the color becomes oftentimes smeary. Papers of inferior quality will easily stick to the film.

These disturbances, which can easily be avoided if one is acquainted with the cause, are particularly inconvenient for rapid press work.

To obtain good results, the following points should be observed:

1. Constant control of the thermometer and hygrometer.
2. Uniform heating arrangement of the workshop; steam or water heating preferred.
3. Absorbing of the moist air, and addition of colder air in summer.

Similarly, in the exposure of the printing-plate, it should be carefully observed that the properties possessed by all chrome films, particularly bichromated gelatine, receive due consideration. Films which are rich in bichromate behave quite different from those containing a small quantity of this salt, and the quality of light and time of printing play also an important part. The calculation of the quantity of gelatine best for a certain size of plates has proved to be of great advantage.

In photo-lithography the quality of the bichromated gelatine plays also a very important part, as, by an unsuitable composition, an enlargement of the lines and dots during printing can easily take place. Husnik, the father of the chrome-gelatine processes, has studied closely cause and manner of action, and has also discovered corresponding remedies. He has found that an enlargement of the lines will be more or less prevented by a proportionate strength of the chrome bath, and he recommends a bath of 1 part bichromate of soda or potassium and 20 to 24 parts of water; that is, in winter 20 and in summer 24 parts of water. A chrome bath of the strength of 1 : 15 might eventually be employed, but then the gelatine will soften if it is not neutralized with caustic ammonia, and Husnik tries to avoid that, the sensitiveness and durability of the chromated paper being too much reduced. A cool place is most suitable for drying, as the chrome salt will here not so easily decompose in the film. It is difficult to obtain simultaneously cool and dry air in a small establishment, aside from the difficulty of producing a sufficient draught. The simplest way would be to lay the squeegeed prints with the glass upon something that will not easily be affected by the heat, for instance, a lithographic stone, and then expose it in the dark to a pretty strong air current.

An essential improvement of the chrome films for transfer purposes consists in the application of zinc sheets which are coated with a certain film. The following advantages can be obtained hereby:

1. The picture on the lithographic stone or zinc is not distorted.
2. The transfer picture can be cleaned with greater facility.
3. Folds, displacements, etc., are excluded.
4. Less gelatine solution is required.
5. The zinc sheet dries in half the time required for the gelatine paper.

The production of the light-sensitive zinc sheet is accomplished in the following way:

The smooth or polished sheet is put upon a perfectly level glass plate, and is flowed with the following solution:

Ordinary gelatine	60 parts.
Bichromate of potassium	2¾ "
Chloride of sodium	4¾ "
Chloride of calcium	5 "
Ferricyanide of potassium	2 "
Chrome alum	½ part.
Water	250 parts.

The gelatine is left to swell in the water and is dissolved by heating, whereupon the other ingredients are added. After coating, the sheets are dried in a temperature of 20 degrees Cent. The dry sheets will keep for fourteen days.

The following simpler solution can also be employed:

Ordinary gelatine	30 parts.
Glycerine	7 "
Bichromate of potassium	2⅓ "
Water	250 "

The moistening is done in a so-called moistening box. A mixture of 80 parts of water, and 1 part of nitric acid is used.

The printing is done under a half-tone negative. The rolling-in takes place in the usual manner applied to all line work, and the other manipulations are the ordinary ones.

The American enamel process, which is now preferably used, has opened quite a new field in the manner of application of the different chrome films. In this process quite a number of different media, cake glue, gelatine, albumen, fish glue, etc., are employed. Although fish glue seems to prove very favorable, it has the disadvantage of containing impure matter, making a clearing necessary. This cleaning can be done by adding 1 part of albumen to 9 parts of fish glue, and bringing this to a boiling point, whereby the albumen coagulates and absorbs the impurities of the fish glue.

According to Eder's view, a chromated fish glue film is more sensitive than any other, particularly albumen films, and the solution, on standing, becomes still more sensitive. The fish glue is used by itself and also in connection with egg albumen. The reason for this mixture is not known, but the application of the fish glue by itself is preferable, as one is enabled thereby much easier to obtain the greatest purity of the film, provided that purified fish glue is employed. The proportion of fish glue to the water used for dilution deviates considerably; for instance, varying from 3 to 1, 2 to 1, and 1 to 1.

The more important proportion between bichromate of ammonia and fish glue is pretty nearly the same, 8 : 240 in some cases, while in other cases less is taken.

Eder recommends in place of the fish glue good cologne glue, which can be cleared sufficiently with 2 to 4 per cent. dry egg albumen dissolved in water. The exact formula is:

One hundred parts of cologne glue are flowed with 600 parts of water, and after swelling they are melted on the water bath. To this liquid is added 4 parts of albumen dissolved in water. The mixture is heated for fifteen minutes to boiling, and filtered. Sixty parts of this solution are mixed with a solution of 3.5 parts dry albumen in 30 parts of water, and now in lamplight 30 parts of a 10 per cent. bichromate of ammonium solution are added. The very light-sensitive solution can at once be filtered and used.

The polished and alcohol-rubbed-off plate is inked and the surplus is removed, after which the drying takes place carefully at 35 degrees Cent.

Very seldom resin is used in place of glue or fish glue. In this process the copper plate must be strongly heated, which will not injure the copper.

To obtain dark-colored films, black, easily soluble aniline colors should be added to the solutions. The drying should take place only in ordinary temperature and not by heat. To avoid a peeling off of the picture film during the burning in, it is recommended to harden the film. This is done by application of a mixture of 1 part of water and 5 parts alcohol, to which are added 2 per cent. glycerine and 20 per cent. of a saturated chrome alum solution. If the plates are well polished and rubbed off with alcohol, a peeling off will not take place so easily.

Florence.

ALUMINIUM IN THE COLLOTYPE PROCESS.

Many attempts have already been made to apply metal plates, other prepared materials and different kinds of paper in the collotype process, to replace the fragile and rather expensive glass. So far no carrier for the film could be found besides the glass plates, to gain a firm foothold and be of practical use.

After the experiments made by me and my scholars at the Imperial Institute in Vienna, it seems to me that aluminium, already successfully employed in the lithographic printing press, might just as well serve for collotype purposes.

The silicate of soda and beer substratum proved to be excellent, and was as reliable as with glass plates. Plates in a washed condition (after printing), and also etched plates, showed a complete adhesion. A scratch made into the gelatine film with a finger nail could not be extended or increased, even by the application of considerable force.

Interesting, also, is the fact that even without a substratum, the picture film will adhere to the plate, showing that a supporting film is probably unnecessary

The preparation with the bichromated gelatine was made in such a way that the plates were simply dried in the oven, resting upon a plate-glass support. The result as shown in the preliminary tests was that plates which lie perfectly level and flat on the glass will attain a completely equal film, and that the same will not curl. Plates of larger size, which did not lie flat on the glass, showed a correspondingly unequal thickness of the gelatine film, without, however, being influenced by the moisture, or the temperature of 50 to 55 degrees R. in the drying oven.

The thickness of the aluminium plates was about the thickness of ordinary cardboard.

A. Albert.

Coated Papers.—It is said that coated papers were invented in the fifteenth century. In a treatise on painting, Di Valdesia describes a method of tinting parchment or paper green by taking a quantity of green ochreous earth, bone powder, white lead and vermilion. These were finely ground in water, mixed with animal glue, heated to boiling point, and strained. The mixture thus obtained was applied to the paper with a brush, and the glossing produced by rubbing with a stone.

BOILING POINTS OF SOME LIQUIDS USED IN PHOTO-ENGRAVING.

Ether..................	98.6	degrees	Fahr.,	37	degrees	Cent.
Alcohol....................	174.2	"	"	79	"	"
Benzole	176	"	"	80	"	"
Water	212	"	"	100	"	"
Acetic acid............. ...	242.6	"	"	117	"	"
Turpentine	266	"	"	130	"	"
Mercury	667.4	"	"	353	"	"

School of Practical Process Engraving

Our Reviewer.

"Bromide Paper: Instructions for Contact Printing and Enlarging," by Dr. E. A. Just; published by Percy Lund, Humphries & Co.; bound in board covers and copiously illustrated. This is probably the most complete treatise on this printing method, and will be found of considerable value by both professional and amateur. The subject of enlarging is considered in detail, explanatory diagrams giving sufficient information for the handy man to easily rig up the necessary apparatus.

Commenting on "The International Annual for 1897," *The British Journal of Photography* remarks: " * * * this well-printed annual by the good quality that distinguishes its many half-tone and other illustrations and the practical value of the contributed articles. These articles are of unusual interest, and emanate from American, English and continental photographers, among whom we note Bogardus, Bothamley, W. K. Burton, W. Gamble, M. J. Harding, Romyn Hitchcock, S. H. Horgan, Joé, F. P. Liesegang, Neuhauss, Rev. T. Perkins, Victor Schumann, Matthew Surface, Valenta and Waterhouse. The photographic tables and formulas are of great utility. We must not omit to mention that a section is devoted to articles on process work, and, appropriately enough, the process blocks come out exceedingly well. It is altogether a capital book."

That dainty annual, *Mosaics*, is this year of exceptionally fine quality. The editor and publisher has brought to bear in its compilation an experience of many years, with the result that it is absolutely crammed with interesting and instructive matter. The printer, too, deserves great credit for the excellent appearance of the book.

Any of our readers desiring to subscribe to the English photographic periodicals may avail themselves of our connections therewith. We will gladly undertake to place any orders.

The British Journal Almanac for 1897 has all the bulkiness and valuable qualities of its predecessors. The new editor, Mr. Thomas Bedding, gives a short summary of the year's progress, and then describes most of the photographic lenses that have been brought to public notice during the past ten years. The other articles are of the greatest value and interest, being unusually practical and written by men whose names are very familiar to all interested in photography. In the line of illustrations this volume greatly excels all previous issues. We congratulate the new editor on the excellence of the volume he presents.

The American Annual of Photography and Photographic Times Almanac for 1897. Mr. Woodbury has succeeded in getting together in this volume a very valuable collection of pictures and many articles of interest. The volume is in many respects superior to previous issues.

The Photo-Beacon Exposure Tables, compiled by F. Dundas Todd, and issued in convenient shape for the pocket, form a useful part of the photographer's outfit. With them the correct exposure for outdoor subjects, under all conditions, is readily obtainable. Price, 25 cents.

From Mr. L. H. Jones, of Garland, Ill., we have received an excellent photograph. We would be glad to be furnished with title and other details, on the receipt of which we will publish same. Mr. S. E. Wait has taken advantage of the winter season to secure a good snow effect and sends us a print from his negative. The snow clinging to the trunks and limbs of the trees produces a very pretty effect.

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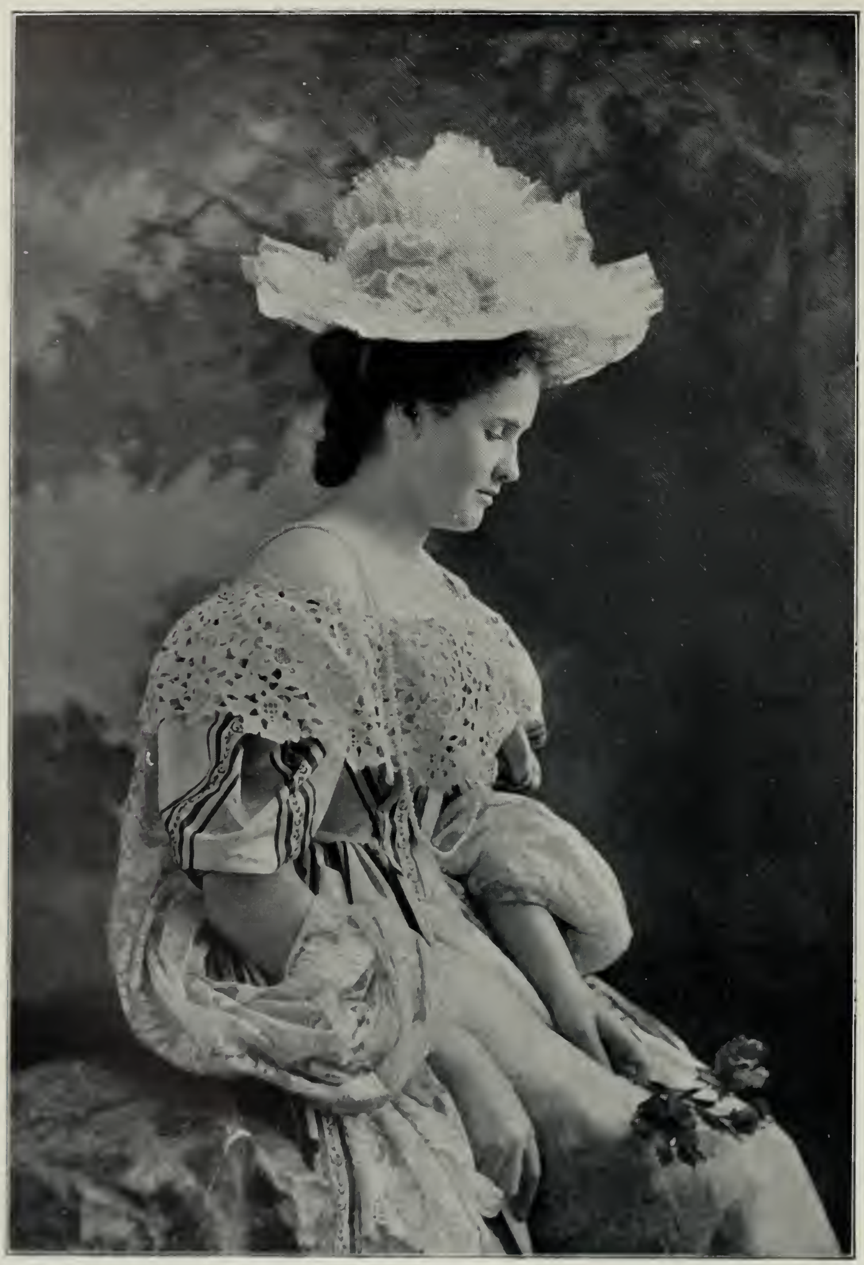

NEGATIVE ON CLIMAX PLATE.

STUDY BY DAVIS & SANFORD.

ENGRAVED WITH RICHARDS' CROSS-LINE SCREEN, 125 LINES.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
FREDERICK J. HARRISON.

VOL. XXVIII. FEBRUARY, 1897. NO. 2.

EXPERIMENTAL WORK.—COLOR PHOTOGRAPHY.

THERE is probably no branch of photographic work so fascinating as the photographing of colors, especially when the object is not the correct translation of color values, but the reproduction of the colors themselves. Since the days of Daguerre, efforts have been made to fix the colors of Nature by the aid of the camera. In our January issue much interesting matter on this subject was published. We append details of two published processes, which can be repeated without great difficulty by our readers.

A sheet of ordinary collodio-chloride paper, Aristo Junior for example, is exposed to the light for from one to two minutes, or until it has attained a reddish black color, and is then immersed in the following bath:

Alcohol	14 ounces.
Glycerine	1 ounce.
Tincture of iodine (1 per cent.)	1 "
Ammonia	24 drops.

The paper is now dried in the dark, and exposed under a colored transparency for about an hour in the sun, being then fixed in ordinary hypo solution. It is said that in this bath the colors show up very brilliantly, paling to a lemon-yellow, when the prints should be quickly washed and then dried in the sun, or in front of a fire. It is said that the colors are permanent.

Another process is that described by M. Graby in a paper read before the French Academy of Sciences. Gelatino-chloride paper is exposed to light until it is violet in color, and is then immersed in a 4

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per cent. solution of hydrochloric acid and dried in the light. It is then immersed in a 1 per cent. solution of potassium bichromate, dried and exposed to light until the gelatine has become quite insoluble, when it is sensitized in the following bath:

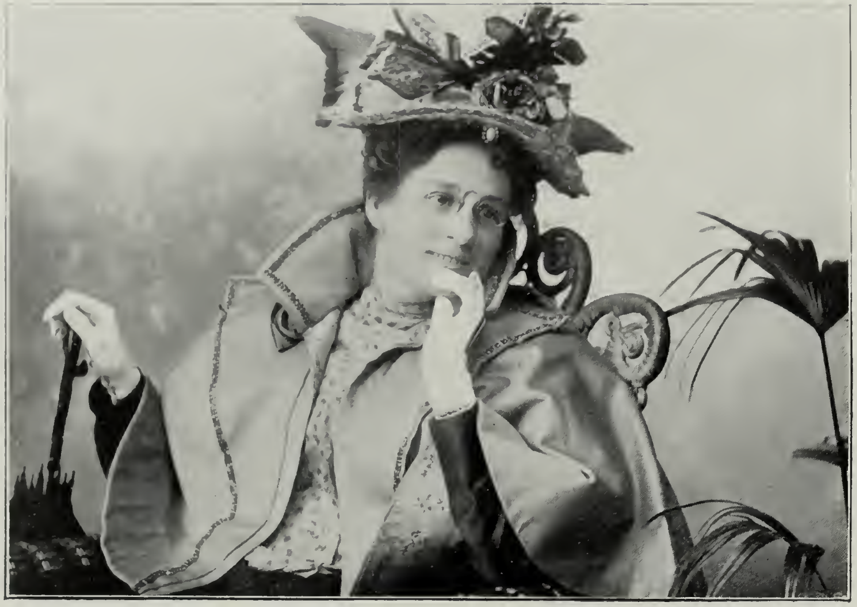
Nitric acid	5 drops.
Mercuric nitrate	30 grains.
Hydrochloric acid	1 dram.
Sulphuric acid	10 drops.
Chromic acid	20 grains.
Soda alum	50 "
Water	2½ ounces.

"This paper is exposed damp, and gives good results. To expose the paper dry, it is first exposed till violet, then immersed in the acid bath in daylight till blue, then in the bichromate bath, then in a bath of nitrate of mercury, and dried and exposed, and, after exposure, immersed in a bath of acetate of lead, and, finally, transferred to a sheet of paper exactly like carbon tissue, and finally passed through a bath of salt and mercuric chloride. M. Graby states that red and blue are due entirely to the subchloride of silver, and can be seen by transmitted as well as reflected light at any angle, and, as he calls them, the chemical colors are similar to the coloring matters of flowers. A piece of silver exposed to the vapor of chlorine in the dark becomes first yellow, then red, and then blue, in proportion to the amount of chlorine that it absorbs, and, if this blue chloride be exposed to light, it will turn first red and then yellowish white, in proportion to the loss of chlorine. Silver chloride by itself will give only a dirty yellow, but a mixture of a chromate and silver subchloride will give a golden yellow complementary to the blue violet, and this is reduced by light to all shades of yellow. The yellow is thus, it is said, composed of chromic acid or a chromate, and, on being washed with acetate of lead, is converted into insoluble lead chromate. Blue and red being due to a definite amount of chlorine combined with the silver, it only remains to insure this, which is done by the mercuric chloride, for these colors to be fixed. White was the most difficult color to fix; but, as this was formed by the bleaching of the blue silver chloride, or, in fact, by the dissociation of the chlorine and silver, and chlorine rendered soluble, the gelatine rendered insoluble by the action of light on the bichromate, it was quite sufficient to treat the paper like carbon tissue to obtain pure whites."

WINTER PHOTOGRAPHY.

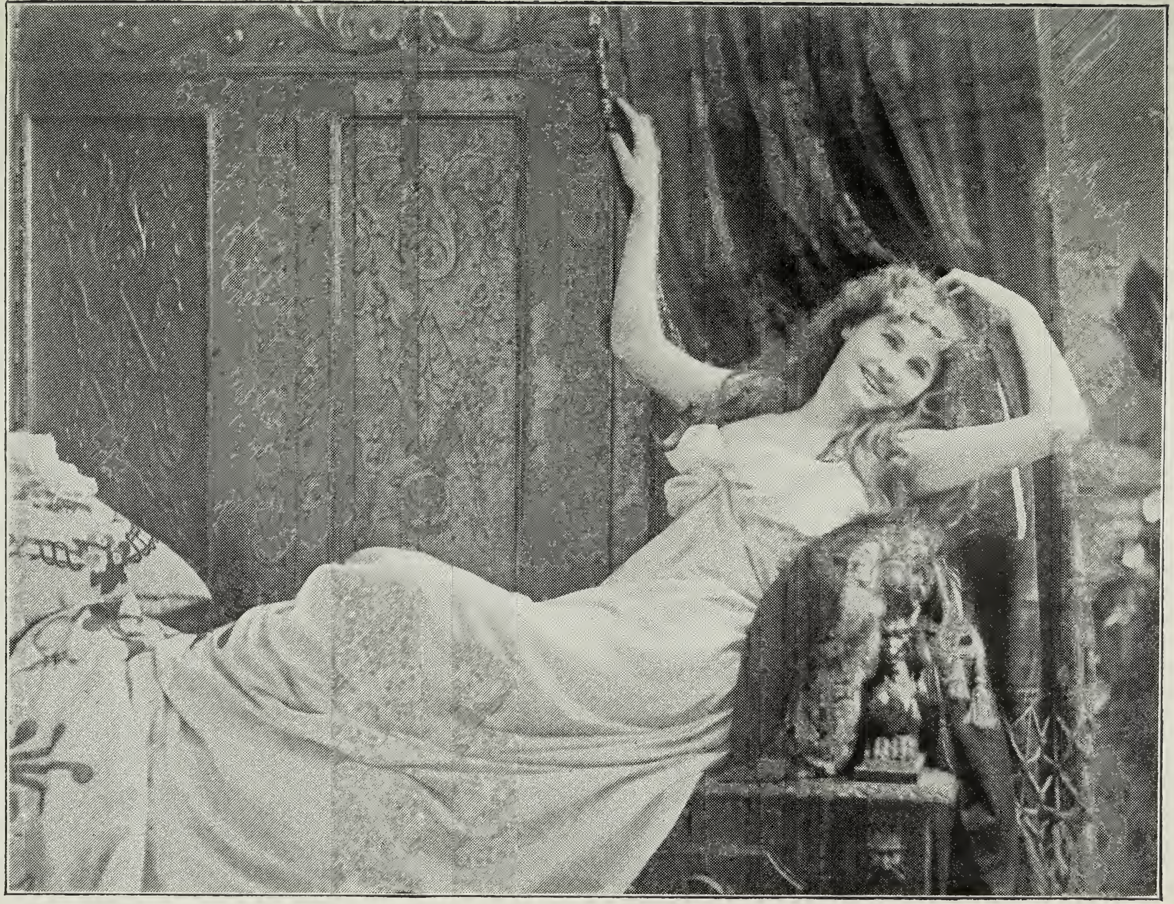
WRITING on the subject of the photography of snow scenery, John A. Hodges says: "The tendency to be guarded against is undue density. Under-exposure will accentuate this defect; therefore, the golden rule to follow in photographing snow scenery is to expose accurately, and if it is impossible to avoid erring, the error should be on the side of over-exposure." This is a point that should be well borne in mind by those of our readers who intend availing themselves of the opportunity afforded at this time to photograph winter effects. Of all subjects there are few that present greater possibilities than those afforded by the general landscape at this period of the year. On the other hand there are few subjects that present greater difficulties, and that make a greater demand on the knowledge and ability of the photographer. A snow scene to which careful attention has been given, in which all the details have been properly considered, and which has not suffered either from lack of exposure or improper development, possesses a charm that few can resist. As stated at the beginning of this article, the chief point to avoid is excessive density. Too often we find a picture of winter a scene having all the appearance of having been made under a strong summer sun, except for the fact that the trees are devoid of leaves. The snow is represented by a white, glaring patch of paper, the shadows are devoid of detail and the contrast is painful. Considerable assistance in the formation of a snow picture is given if the snow-covered foreground is broken up by walking through it, leaving the impression of footprints. The snow then looks like snow, the footprints giving some shadow in the otherwise unbroken expanse of white. Exposure should be made for the shadows, and in this case, and at this time of the year particularly, one of the little instruments known as exposure-meters will be found of considerable assistance. The chief source of trouble, however, in the making of pictures of winter scenery, particularly when snow is on the ground, lies in development. If the exposure has been made for the shadows, the high lights will be possibly largely over-exposed. The tendency with ordinary development will be to produce a negative in which all the detail in the high lights, that is, the snow, will be lost while an effort is being made to bring out detail in the shadows. It is exactly a similar case to that in which an attempt is made to preserve some few faint clouds in a landscape while endeavoring to obtain the finest detail in the darkest parts of the picture ; the clouds are lost, and so in the case of our snow picture will be the peculiar pitted effect characteristic of snow. To remedy this, a developer containing very little of the actual reducing agent, that is, the pyro, eikonogen, metacarbol, etc., must be used.

The excess of alkali will tend to the production of ample detail without excess of density. A soft negative is desired and will result from the employment of such a developer. One other point in connection with snow pictures should be noted here. Where there are such contrasts, and indeed under any and all circumstances, halation will be apparent in negatives made on unprepared plates. Especially is this the case with snow pictures, where the light reflected from the snow is excessively strong, and, passing through the sensitive film, is reflected back again, at a different angle, from the back surface of the plate. The plates for snow-work and, indeed, for all work, should be backed, to prevent halation. As an interesting experiment we would advise our readers to back one-half of a plate with a non-halation backing and then make a trial exposure. On development, the difference between the two halves of the exposed plate will be strikingly apparent.



STUDY BY ERSKINE & PROCTOR.

Engraved with Richards' Cross-Line Screen.



Richards' Screen, 96 Lines.

STUDY BY DAVIS & SANFORD.

Negative on Climax Plate.

Items of Interest

LANTERN SLIDES on celluloid films have the advantage of being unbreakable, and, therefore, mailable, besides being compact and light. To exhibit them in a lantern the following method is suggested by F. Neat:

"Many people at present use film slides, but mount them between two glass plates; the only advantage of this is that, if the slide happens to have a fall and the glass cracks, one can dispense with the anxiety as to whether it is the glass with the picture or the cover glass that is cracked, which is a source of anxiety when an ordinary glass slide happens to fall.

"There is no necessity whatever for mounting a supply of films between two glasses and binding them up. Two glass mounts only are necessary, and these mounts are quickly made.

"Take two cover glasses, and having placed a film between them, proceed in the usual way to bind them up with strong binders; when these are quite dry, run a penknife along the binders on three sides, leaving the fourth to act as a hinge. The reason for placing a film in before binding up is to allow a little thickness at the hinge.

"When a film slide is to be used, the glasses are opened out bookwise, a film inserted, the glass closed up again, and the whole thing inserted in the carrier.

"It would perhaps be an advantage to gum a mat to the inside of one of the glasses."

* * *

HERR VON GEYZEL says the color of bromide of silver prints depends upon the following circumstances:

1. The photographic activity of light.
2. The time of exposure.
3. The printing capacity of the negative.
4. The strength of the developer.
5. The time of development.

If a completely black tone has been obtained, the toning with gold can be proceeded with, and here it must be remembered that bromide of silver prints tone with considerably more difficulty than chloride of silver prints, but are also subject to more after-toning. They should, therefore, be taken out of the bath before the desired tone has been reached. The gold bath must be neutral or weakly alkaline, contain a sufficient quantity of gold, and be free from all organic matter. An ordinary bath with acetate of soda gives excellent results. The developed and very carefully washed print has to be put into the gold bath before fixing.

In a platinum bath, in place of the gold bath, the picture will fade considerably. The picture must be free from all traces of developer, and care should be taken that the acid is completely eliminated, which is done best by a weak alkaline bath, followed by careful washing.

Untoned spots in Aristo paper, Lainer says, are oftentimes fingermarks, but in some cases the origin of these spots cannot be explained. He recommends that alcohol be applied to them with a brush, whereby the film is softened, and the gold bath can penetrate more easily. The same applies to old paper, which does not tone uniformly. If this is exposed to alcoholic vapors in a closed box until it becomes soft, it will tone with ease and more uniformly.

◆

The Second Annual Convention of the Photographers' Association of Michigan will be held at Detroit on the 2d and 3d inst., and a list of valuable prizes has been sent out and will doubtless result in the getting together of a large display of first-class work. This association has adopted a special prize-list for amateur photographers, and in this it has departed from the general rule observed by professional associations. Doubtless some of the work sent in by amateurs will contain much that can be studied with advantage by some of the professionals. There is promised an exhibition of a collection of pictures gathered by C. L. Weed, of the American Aristotype Company, showing the evolution in photography since the time of Daguerre to the present day. There will be shown pictures from each year since 1835; first, the silhouette, then the Daguerreotype, then the Ambrotype, and so on to the present day.

◆

The Brooklyn Academy of Photography, whose headquarters are at 177 Montague street, Brooklyn, are making special efforts this year to make their meetings attractive to all concerned. The programme for January included the working of platinum paper, an exhibition of X-ray apparatus, and a lantern-slide exhibition. On February 25th, 26th and 27th, there will be held a competition for prints and slides, details regarding which may be obtained from the Secretary. The classes include landscapes, marines, portraits and groups, architecture, life, and inanimate objects, such as fruit, flowers, etc.

◆

The advantages of electric light in the darkroom are so many that it is not surprising that a really efficient electric darkroom lamp has been placed on the market. Apart from the absence of smell and heat, nuisances inherent in almost every other source of darkroom illumination, there is the great advantage of ease in turning the light on and off. Matches are dispensed with, broken lamp glasses are no longer replaced by others of different color, and a practically constant light may be obtained. Further, in the lamp known as the Acme Electric Lamp, the quantity of light used is under control. We would advise our readers to investigate this portable electric darkroom lamp.

* * *

Ruskin says: "Composition means, literally and simply, putting several things together, so as to make one thing out of them, the nature and goodness of which they all have a share in producing. It is the essence of composition that everything should be in a determined place, perform an intended part, and act in that part advantageously for everything that is connected with it. Every line and color is so arranged as to advantage the rest. None are inessential, however slight; and none are independent, however forcible."

* * *

E. Mussat describes a method of intensification which is brought about by a contraction of the film. The plate is first immersed in formalin, and subsequently in warm water. As soon as it shows signs of frilling, the photo is removed to a tray of alcohol to which about 4 per cent. of glycerine has been added. To obtain the greatest amount of intensification, 95 per cent. alcohol should be employed. When sufficient density has been obtained, the negative is taken out and squeegeed down under blotting paper.

* * *

We note with sincere regret the death of Madame Victor Legros, the wife of Le Commandant V. Legros, of France, one of our most highly valued correspondents. We tender to him our earnest sympathy.

* * *

From Mrs. W. Smith we receive the following criticism of the picture "In the Catskills," published in our December issue: "I would say that the negative was underdeveloped, the details not being fully brought out, this being especially noticeable in the shadow on the water and on the hillside."

* * *

Mr. H. D. Furniss sends us a note from which we extract the following:

"The following is a very simple way of determining how much of a solid in an opaque solution is left undissolved, as in dissolving chrome alum in large quantities, so that the solution is 2 or 3 inches deep.

"Take an ordinary drinking glass, whose walls are higher than the depth of the liquid, at the bottom of which rests the undissolved substance; lower it into the liquid, bottom side downwards, without letting any of the liquid into the glass, and the undissolved substance can plainly be seen. The air in the glass offers no resistance to the light, and the effect is the same as if looking into a liquid whose depth is only equal to that which would be sufficient to just reach the top of the substance viewed.

PICTURE-MAKING.

As a reader of your useful magazine, I notice your promises for '97, and as I think it the duty of the veterans in photography to smooth the way for beginners, so far as practical hints may help, I respond to your request for a criticism upon the "Catskill picture" in your December number. At first glance I would urge better taste in selection and exposure. Taste in art work is a *sine qua non* if one would please tasteful people.

In planting my camera I would place it upon the ledge of rock shown in immediate foreground, leaving this ledge out of the picture entirely. Near here a dead tree could easily be towed by boat or a rope, and used to give picturesque interest to immediate foreground, and avoid the monotony now evident. I would use a long-focus lens, say 18 or 20 inches, and add to sky above the hillbrow say one-half or three-fourths of an inch or more if possible. I would place the camera more to left hand, and secure more of a mass of foliage on left, and cause the stream to lead the eye into the picture. This would diminish the mass upon right, and allow the tall pine in distance to rise above the hill and thus break the too evident inverted triangle of sky now shown. So much for better selection. A very useful thing for the beginner is a Claude Lorraine glass, made from a spoiled plate, cleaned of its film, and coated with thick asphaltum varnish. Mounted upon a thick piece of book cover, *passe partout* style, and shellacked, it can be used in all weathers. When one is working in a water region he can take a boat or canoe and prospect for pictures by its aid. These can be found and noted during the forenoon, and exposures made during the late afternoon when "shadows are long." It will well repay one's trouble to be particular in view selection. I have secured some of my most poetical negatives by wading into the water until the camera was but a few inches above it before exposing. If one is far from haunts of men, and no boat or canoe can be had, the Claude Lorraine can be carried in the teeth, and by swimming on one's back the art possibilities can be ascertained at different points.

Having need to make a trip for several hundred purely picturesque negatives, I took along a long-focus lens of 18 inches, a wide-angle lens, and my most valued companion, a hand camera for shutter work.

I carried lightning plates, very slow plates, and magnesium cartridges for any work in gloomy places calling for flash lights.

I carried two magazines holding nine plates each, slung by straps from either shoulder, while my hand-camera plates were disposed in holders in inner pockets of my canvas hunter's-coat. I had a hatchet in my belt for making foregrounds, and a revolver in my hip pocket for varmints, human or animal. I was thus sure of bringing in two dozen carefully selected negatives each day.

I used eiko for detail, and quinol with ferrocyanide for density and clearness, with two hypo baths. I recorded each exposure and the light and all essential conditions in my notebook. One magazine contained lightning plates, and one slow plates. Each was numbered and entered in blank on book before starting. My hand-camera plates were each lettered, and each dark slide bore a red label with the letter corresponding to plate. All my flash lights and snaps I started in alkali bath before eiko, and I washed well between each bath.

Coming upon the scene like the one shown, I would place my camera and expose amply a slow plate upon the view. I would next place the lightning magazine in camera and expose a quick plate for clouds and water from same standpoint.

My conscience does not chide me for any after work upon the negative that I deem fitting for its artistic improvement. I am well aware that in a wild region one may not sit and wait for hours for the much-desired "effect." One must take what he can get and thank the gods, supplying the artistic quality by work upon the negative. Having a negative like the "Catskills," I would treat it with dyed mat varnish, in order to secure correct "tonal value" and "truth of space" which it lacks now in a great degree. The foliage upon the left as it retires up stream should show more dimly than the mass at right. There should be some clouds behind the hill, and the tall pine should "tell" against them.

Take an ounce of mat varnish, add to it a few drops of carbazotic acid (called picric acid). It may be a 10 per cent. solution in alcohol. It becomes a rich golden-yellow tint. Take one-half this and add equal parts varnish. We have No. 1, yellow for sky; No. 2, tinted for mid-distance; No. 3, clear varnish for the remainder of the view. In the retouching desk avoid too much light; diffuse it by opal glass or thin waxed paper. Apply No. 1 to sky, to hold it back; quickly follow No. 2, for distance along the edge of stream and over it; mingle No. 3 with this, and let all dry. With the point of scraper remove varnish from all deep dark accents. Gently pencil the clumps of foliage. Retire some trees behind the others. Work up reflections in water, etc. With stump and graphite work up and model the clouds. Superimpose the quick plate and get a trial print, using a reading glass to control and focus the sunlight through the waxed paper, which I always use over printing frame. If the negative now were mine, I would add a canoe and two paddlers by combined printing in the white space in water at left. The paddlers facing the rapids would tell darkly against the water, and add interest to the picture, which might be then called "At the Carry," or "Making the Portage."

I always pre-expose my albumen paper before printing and use soda pads. It is not liable to "go back" so much in hypo baths. If for illustrative purposes, I prefer albumen paper. For artistic uses Whatman's 'Not" for 10 x 14 or Saxe paper by the bichromate methods with brush development, *à la* "Artigue Velours" style, using hot water, and brains, for an artistic picture.

C. Ashleigh Snow.

All copy for the March issue should be in our hands on or before February 18th.

COMPOSITION.*

AMONG photographers the word composition is used with a variety of meanings. In its most common application it is made to refer solely to the arrangement of the main lines and the boundaries of a photograph. This is a mistaken restriction. We constantly hear it said that the composition of such and such a picture is unpleasant, because it requires more off the foreground, or because a roadway or river course is traveling out of the picture. This may be all very well as far as it goes, but it is elementary and incomplete, and in such criticism one is generally aware that the observation and knowledge goes no further.

Composition is not only a matter of the placing together of lines or outline boundaries and of masses of light and dark in a space, but it also concerns the entire disposition of objects to tell a story or describe a scene. In graphic representation it is personal selection in every particular of arrangement of line and light, of relative definition, relative tone and of expression—figure of man or face of Nature—and it involves, all through the artificial or personal combination, the keeping of the main motive, the sentiment of the subject, uppermost in the illusion.

Such works, to deserve the name of compositions, must have a motive personal to the author, and some feeling. Photographs are frequently presented for criticism about which it is simply impossible to say anything from an æsthetic point of view, except that they are not compositions at all. There is no subject in them, no pictorial conception, no imagination or sentiment, no decorative aim or knowledge, no emotion stirred, no particular reason for anything—they are simply lists of objects, mere mechanical transcripts.

The difference between such a representation and a good picture is the difference between a catalogue and a telling story with subtle analysis of character, or between a newspaper record and a fine prose composition or poem. The catalogue has its useful place, but ought not to be presented for criticism as classic literature.

It may be true that some element of composition must enter into the production of every representation, however limited the thought. For it is almost impossible that any worker can learn to employ a means of picturing without gathering a few ideas concerning subjects to be selected and the best way of showing these subjects. In these matters the question of degree must always be very prominent.

The photographer is in the peculiar position of having placed in his hands the power of making very complete representations without necessarily having to think and select. He does not start with the simplest of objects, studying its form under varying conditions of light and shade, and comparing the graphic result with his mental impression. It would be better if he did. He generally pursues from the outset a course of complicated subjects, accepting what his procedure gives him too often without criticism or attempt at modification. His tendency is to forget more than half of what is involved in composition and to fall into slavery to his tools.

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* From *The Practical Photographer.*

As a matter of fact, manual skill is of little use unless the worker has something worthy the telling. Such a state of things is craft without art. When a practitioner in any art craft has acquired his proper technique and knows the use of his tools and what they will do for him, there still remains the important part of how, when and where he shall apply his dexterity. What shall he select or conventionalize? How shall he give expression to his own impressions of human form, human character and relations, or of Nature's appearances and moods?

His practical answer to this enquiry is the artist's composition. He picks out and places together statements or suggestions of those facts which his own observation, feeling and analysis induce him to select. The education which leads to his selection is the education of his life, the moulding of his surroundings, natural and artificial.

The way in which he orders this technique, observation and feeling to tell a story, fill a space, design a pattern, describe a person, scene, incident or effect, is composition. And in this view it will be promptly evident that it would be absurd to seek to deduce any absolute rules of arrangement or to give the particular practice of any artist or artists the prominence of laws.

This remark holds with regard to classes of art which must be frankly graphic and simulative, such as landscape and portraiture, even more strongly than it does to the purely suggestive, conventional and decorative sections. But even in the department of applied decoration there are no possible rules for ordering subtle and convincing suggestion by means of a limited technique of lines and unmodelled masses of shade. Every successful design has its charm in its surprise, in its simplicity and fitness, the result of complex thought and a power of abstraction and refinement that defies classification.

To crystallize the methods of any man or school in the form of rules for guidance does more harm than good. It may be possible that in time some small scientific base may be agreed upon to connect the sense of pleasure with certain line and color compositions, but that time is not yet, and where the number of circumstances to be used decoratively and the proportions of shapes to be filled are infinite, pleasure must wait solely on fitness, and fitness upon a thousand thoughts and feelings.

Some time back a statement was made in the photographic papers that there could be no composition in photography, only selection. The remark was made in a discussion, and was reported without any context, so that it is not easy to criticise the position taken up by the speaker. Without his definition of the word, it may be fighting in the dark to take exception to the attitude. At the same time it is difficult to see how any reasonable meaning whatever can be put upon the word which shall altogether exclude photography. It is true a definition might be constructed which would limit the possibility in photography somewhat narrowly. Some persons, for instance, have the feeling that nothing is really worthy the name of composition without color scheme and harmony.

But leaving the large and increasing world of black and white art as its own justification as a whole, how can photography be specially excluded from this group? Take an extreme case. Let it be supposed that the word composition implies a new ordering and arrangement of facts or impressions gained from a variety of experience, and upon different occasions; in other words, a combination of several sketches or memories. This will be no impassable barrier. The degree to which it is actually practiced does not affect the principle. Combination photography has given results fully equal in essentials to the domestic genre pictures of the painters' galleries, and a photographer may, in a wide range of subjects, bring together properties and apply lighting in harmony with previous experiences, thought or fancy.

To say that the impression in the photographic print is not the impression of the mind is a doubly assailable position. Some find that the impressions are alike, and at least it is a matter for personal opinion. If the operator consciously affects in any degree the qualities of his final print in respect of line arrangement, light and shade, and cloud harmony, to mention a few points only, it must be so far his composition.

It becomes a nicer question when the discussion turns upon the local selection and simplification possible and practiced throughout very minute passages of artistic work. But this, again, is a matter of degree. Composition and selection cannot be restricted to a point of practice, which, after all, when practically tested, is found to consist chiefly in generalization.

The contention, however, that there can be no composition in photography hardly seems worth serious discussion. The word composition will not bear the strained interpretations we have put upon it for the sake of argument. It refers to the whole work and to every part of the work—to selection of instance and point of view, to control in exposure, focusing, development and printing, to ordering the background to the figure, to posing and lighting for character and arrangement of line and mass, to sympathetic calling up and seizing of expression—in short, to every thought and act all through in the production of the illusion which we call the picture.

Any hard and fast distinction between selection and composition in art work is an impossibility. Both involve ordering and arrangement of parts. Whether the selection and composition be set down by brush and pencil or by lens and printing does not affect the principle. The camera could not do it without the man, and no two men could or would independently produce the same composition.

If further evidence were needed, let ocular proof carry some weight. Compare, under circumstances as nearly similar as may be, half-tone reproductions of good landscape pictures which have been produced by painting and by photography. There have been many examples of half-tone prints before us in the picture magazines. Take the instance of work by such a good painter as Mr. Alfred East. Its similarity in its reproduced dress to what we are accustomed to in good photographs is quite convincing. Hardly any one will deny the presence of composition in the print from the painting. And in the photograph will be found something of all the qualities that go to make the print a composition. Why, then, strain to make distinctions which practical results will not warrant?

In a composition there may be a pleasure in the subject, a pleasure in the effective way in which the artist has seized the sentiment of Nature, that is, has presented our own unwritten or undefined feelings about the subject, and a pleasure in what may be called the decorative message of the picture.

The pleasure in subject may be quite distinct from any conscious æsthetic consideration, as in many popular pictures of the story-telling class. But even in such cases there is plenty of scope for arrangement, and there may even be said to be a special kind of quality of composition required to produce the particular excitement for which the patrons of this order of pictures crave.

In every class of work it is difficult to separate the various feelings of pleasure. In the finest works the manner is intimately part of the matter, and the proportions and decorative harmony are essential to the whole effect. No picture can be a very perfect work unless it speaks in all three voices as one. If the subject-matter be trivial, only a trivial matter can save it from incongruity. Whether in portraiture or landscape one finds it difficult to deny the importance of a distinguished and characteristic instance. This is seen plainly in the general agreement to admire the picturesque type, the furrowed features and white locks of age, or the charm of feminine youth and beauty, even when the treatment is commonplace and out of keeping. In portraiture and landscape the beauty of the work of art is in the character and in the force of its statement complete and harmonious within its boundaries, wearing its limitations, as it were a perfect freedom, like finely ordered music.

The beauty and distinction of instance need not, however, be judged by a popular standard of prettiness. In a portrait picture it matters not if a man be ugly as the world counts ugliness. The chief feeling of æsthetic pleasure lies in the powerful and expressive rendering of strong typical character. It is indeed quite consistent with aversion for the disposition or conduct portrayed. Tragedy and comedy may alike be pleasing, each calling for its appropriate key, phrasing and touch throughout, in short, for a composition suitable to the theme.

In landscape and in all work where the idea of graphic representation is uppermost, the first and foremost quality must be that of natural sentiment. Whether it be the feeling of figures seen through lacing branches, the movement of waters with reflections, or of wind upon grasses, the suggestion of evening calm or noontide brilliancy, or the expression of character in portraiture, the keenest pleasure comes from the subtlety and perfection of the illusion. Not, be it understood, necessarily perfection or completeness of the details of the objects in the representation, but rather convincing expression of the general feeling of that particular phase of Nature or personal character which has been made the motive of the picture.

While, however, insisting on this quality of naturalness of sentiment as of greatest importance in graphic pictures, we have no intention or desire to minimize the importance of the decorative arrangement; every good picture must be decorative as well as graphically representative. Indeed, in the best examples, as already stated, the two parts are inseparably united and merged. There is a reason in the subject motive itself or in the effective concentration of interest upon it for the disposition of every part in the space filled. The subject must dictate the space design.

G. DAVISON.

RESIDUES AND THEIR COLLECTION.

IT is not too much to say, writes A. D. Pretzl in *The British Journal of Photography*, that, while during the summer the photographer is busy making negatives and printing, the winter too often is a time of enforced inaction, and it is then that there is time to look over one's negatives, to classify them, and generally clear up after the rush of work. While the summer is the time of heavy work, it is the time of heavy residues, but there is no leisure to attend to them, and the only thing that can be done is to take care that they are collected as carefully as possible. In the old days of wet collodion and albumenized paper sensitized at home, the residues were valuable, but, when dry plates came in, and albumenized paper was bought ready prepared, the value of residues dropped. At the present time, when collodion and gelatino-chloride papers are more general, the residues should be valuable.

At least 60 per cent. of the silver used in the paper can be collected in the shape of residues, if care is taken. The most of the silver is in the fixing bath, but the first washing water contains a good deal. If, as is sometimes the case, the first washing is performed either in a solution of carbonate of soda or salt, the soluble salts of silver are converted into insoluble carbonate or chloride, and then the whole of the residues may be in the fixing bath ; in this case it is not worth while saving the first washing water. If, on the other hand, plain water can be used, it should certainly be collected, and, in order to precipitate the silver, it should be well acidulated with nitric acid, and then some hydrochloric acid added. Acid is preferable to salt, unless care is taken not to add too much, for, if this is done, some, though a small quantity, of silver chloride will be dissolved. The washing waters will be, of course, rather plentiful, and very fair-sized tubs must be used in order to collect them. In order to test whether the whole of the silver is precipitated, it is advisable to test a small quantity with a little pure hydrochloric acid, and, if no precipitate is formed, the whole of the silver is down. The chloride should then be collected and well washed till quite free from hydrochloric acid. If this is then dried, it should be kept separate and not mixed with the other residues, for it is fairly easy to reduce to the metallic state.

The reduction may be effected by means of zinc or magnesium, and either by the acid or alkaline method. For the latter, the chloride of silver may be merely made strongly alkaline with strong ammonia and water, and then fine granulated or filings of zinc added, when the silver will be precipitated. Almost a better method is to dissolve the silver chloride in ammonia ; but this is costly, as regards ammonia, for it requires nearly 70 parts of ammonia to dissolve 1 part of chloride. Preferable to zinc is the use of powdered magnesium, which is considerably purer than zinc, and, therefore, the reduced silver does not afterwards require so much purification. If, in a fairly large vessel, sheets or bars of zinc are placed, in the proportion of about 23 parts of zinc to every hundred of silver chloride, and this then covered with a mixture of 1 part of ammonia to 2 parts water, and the silver chloride be suspended in a muslin bag, so as just to touch the liquid, the chloride of silver will gradually dissolve, and, in consequence of its greater specific gravity, will fall to the bottom, and there, coming into contact with the zinc or magnesium, which may be used instead, will be reduced to the metallic state, and thus be obtained with the absolute certainty of not being at least mixed with unreduced silver chloride.

Instead of using ammonia, the chloride of silver may be acidified with hydrochloric acid, and the silver will be reduced with zinc, and any zinc which is not decomposed may be dissolved out with dilute sulphuric acid.

If one has a silver dish, which, I must confess, is hardly a utensil that will be found in a photographic laboratory, and if an induction coil, or one or two Leclanché, Daniell, Grove or Bunsen cells are handy, the chloride of silver may be placed in the dish, and covered with a saturated solution of sal ammoniac. The positive pole being placed in the solution, and the negative being attached to the dish itself, the chloride will be decomposed into metallic silver.

Müller suggested some years ago placing the silver chloride in a porcelain dish, covering it with dilute sulphuric acid and placing the negative pole of a Bunsen or Grove battery in the chloride of silver, while the positive is merely allowed to touch the liquid, when the silver will be deposited.

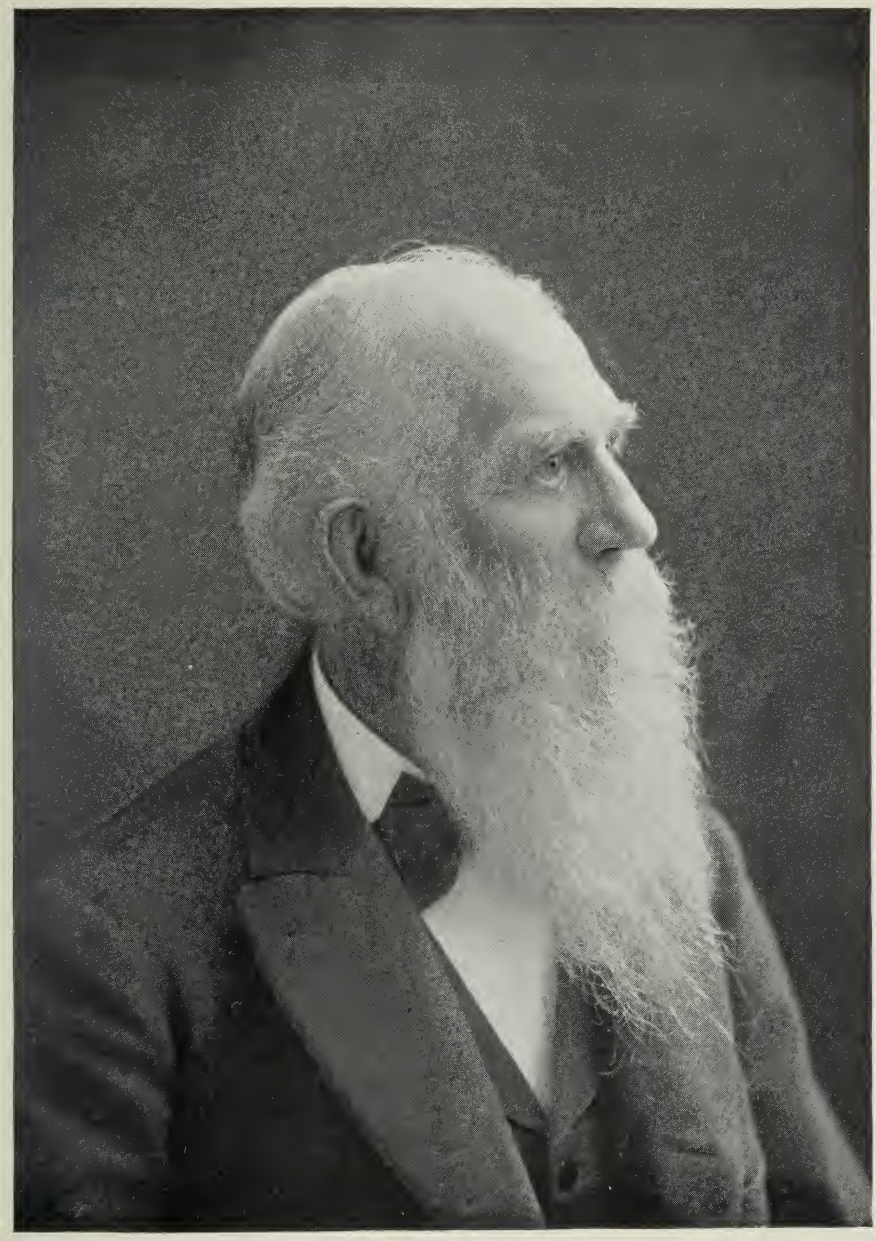
Old fixing baths should, of course, be collected, whether of paper or plates, and the addition of hydroxylamine hydrochloride and caustic soda solution, which can be obtained in an impure state commercially, will soon reduce the silver. The use of liver of sulphur, as the sulphydrate of potassium is known, is to be deprecated, unless it can be done out of doors. Far preferable to this is the use of zinc or magnesium powder, as no fumes are given off, and a tub under the developing sink will be out of the way and handy when the fixing bath gets dirty.

Paper clippings should be burnt, and the best method of doing this is to place the paper in a tin baking dish and burn from the top; if burnt, as usually recommended, in a flue, the draught is so great as to carry off some of the ashes. After burning, the ashes should be heated in a porcelain dish with about 10 per cent. of sulphuric acid for about half an hour. This dissolves out all the carbonates of potash, etc., and then the residue should be washed and then treated with nitric acid, strong, with a moderate amount of heat, and the solution allowed to cool, filtered, and the silver precipitated in a pure state, and again dissolved in nitric acid.

When we come to the combined toning and fixing baths, we have solutions of silver with gold, and the process is more complicated. The best method of treating these and sulphocyanide baths is certainly to evaporate to a fairly small bulk, and to add about four times the bulk of concentrated solution of sulphate of iron; boil, collect the precipitate, wash and boil with nitric acid, which will dissolve any iron and silver, and leave the gold behind. The silver may be precipitated as already described, and the gold well washed and redissolved in aqua regia to form chloride of gold.

The increased use of platinotype paper and the chloro-platinite of potassium as a toning agent should induce photographers to collect the residues. The developing solution contains all the chloro-platinite that is not reduced to metal to form the image, and it is only necessary to add sufficient ferrous sulphate solution to form ferrous oxalate to precipitate the whole of the platinum. Paper clippings should be merely reduced to ashes, and then treated with sulphuric acid to dissolve out the alkaline salts; then the residue redissolved in aqua regia to form platinic chloride, which can, of course, be converted into chloro-platinite.

It may be considered that the collection of residues is a troublesome process, and one not worth the game, too, in respect of cost, but during the winter months there is considerable time to spare, and the necessary outlay is small.



STUDY BY COBB, BINGHAMTON, N. Y.

ENGRAVED WITH RICHARDS' CROSS-LINE SCREEN, 125 LINES.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

ON THE ILLUMINATION OF A NEGATIVE FOR ENLARGING PURPOSES.*

EVEN illumination of a negative for enlarging purposes is found by some to be difficult to obtain, more particularly when artificial light is employed for the purpose. A very usual procedure is to place a ground-glass at such a distance away from the negative that any grain it may have is so much out of focus that it does not affect the resulting positive. That this is a good principle of illumination for general purposes cannot be gainsaid, but it must be carefully carried out or the results will not be as anticipated. We will suppose that we are using an ordinary lamp of 20-candle power for the source of light, and that we are enlarging a quarter-plate negative to, say, twenty-five times its area—the precise extent matters very little—and propose to use a ground-glass screen to diffuse the light passing through the negative. First of all, what distance from the ground-glass should we place the lamp, and, second, at what distance from the negative should we place the ground-glass? It may not be inappropriate to point out some experiments that may be made. Photography is one of those subjects of applied science which directly lend themselves to experiment, and, being so, is one of the greatest educational value; hence we do not hesitate to ask the reader to make them, and thus not to take for granted anything the writer may lay down. Take the lamp in a room shut out from daylight, and place the ground-glass some 18 inches away from the lamp, and the center on a level with the flame. Place the eye, say, 4 feet from the ground-glass, and notice that as long as the eye is shaded by the ground-glass from the direct light, the part of the ground-glass most brilliantly illuminated seems to be the part in the line with the flame. This tells us that the glass does not so diffuse the light as to prevent some small part reaching the eye direct. Next grind a piece of glass on both sides. This is readily done by a little sifted emery powder and water spread on a sheet of glass, and with a circular motion grinding the first and second surfaces of the glass required for the experiment. Place such a ground-glass (dried, of course) in the same position as before indicated, and again notice the results. It will now be found that any direct illumination of the eye by the flame is almost nil. Examining the ground-glass from a point where the center of the glass and the flame are in a line, it will be noticed that the strongest illumination is at the center, and is least strong at the margins. Evidently, then, such an illuminated glass could not evenly illuminate a negative at whatever distance apart they were placed. Next, move the lamp further off, and notice the illumination of the glass again. It will be found that the lighting has become more even, and, finally, when the distance of the center of the flame from the margins and center does not differ much, the illumination becomes practically uniform. But there is another point to consider, and that is the loss of illumination of the ground-glass by the withdrawal of the lamp. It varies inversely as the square of the distance. Having got a ground-glass of a given size to use, it is safe to allow the distances between the margins and the center—from the center of the flame—to be as 21 to 20; in that case, the difference of illumination will be about as 16 to 17, a difference which, for the purpose in view, is inappreciable. Some people use white paper as a secondary source of illumination for the negative. Unless very carefully selected, the light, after penetration through white paper, has lost a large proportion of its blue and violet and ultra-violet rays—in fact, a good many kinds of paper are absolutely fluorescent in the ultra-violet, and most of the energy of radiation in that region is taken up in the work of fluorescing. The drawback, then, to most paper is the great quantity of photographically actinic rays which is cut off by it. It has, however, the advantage that it is practically opaque to the direct rays. For the reason just stated the doubly-ground glass is the more efficient screen to use, as it only absorbs what the glass unground absorbs, and that is very small.

Now another set of experiments may be very well carried out to indicate the size of the ground-glass that should be employed, and its position with regard to the

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*From *Photography*.

negative. Take a ground-glass of very slightly larger size than a quarter-plate, illuminate it fairly evenly, and, having put a sheet of paper, on which a grease spot has been made, in an open frame, place it, say, 6 inches away from the ground-glass and parallel to it. Put the grease spot opposite the center of the ground-glass, and illuminate the side of the paper which is away from the ground-glass by a candle, and move the candle till the grease mark disappears, and note the distance. Move the spot opposite the margin, and again alter the position of the candle till the same disappearance is noted. Measure the two distances, and it will be found that the grease spot is much more illuminated in the first case than in the second. Next move the sheet of paper to half the distance from the ground-glass, and repeat the experiment. The result will be that the illumination is more equal. Finally, leave only $\frac{1}{8}$ of an inch between the two, and it will be found that the illumination of the paper, as tested by the grease spot, is practically equal throughout. Repeat the same experiments, but with a whole-plate size of the double ground-glass, and it will be noted that the spot may move along the center of the ground-glass for the distance of half of quarter-plate on each side of the center without any falling off of illumination being marked, even when the paper is 6 inches away from the glass. From these two sets of experiments we gather that the larger the ground-glass, the further away from it the negative may be placed for enlarging purposes. The reason of this is not hard to see. Each unit of lighted ground-glass surface is at a different distance from each part of the negative, and the further the distance of the unit from a point in the negative, the less is the intensity of the light from such unit falling on such point, not only because of the distance, but because of the angle at which it falls on the surface of the negative. In the case of a small ground-glass the margins of the negative must evidently suffer a great loss from the fact that no illumination reaches them from ground-glass beyond them. When the small glass plate is very close to the negative the main illumination evidently comes to the negative from the part of the ground-glass immediately in front of it. We thus see that care is necessary to get a proper illumination of the ground-glass, and also of the negative, by varying their distances apart, a greater distance being permissible the larger the ground-glass is in comparison with the size of the negative according to its size. When daylight is employed for illuminating the ground-glass there is not the same difficulty of securing the former as when artificial light is used, for each part of the screen will receive the same quantity of light, supposing the surface to be freely exposed, but the same care must be taken to secure the equal lighting of the negative. Whether light is transmitted or reflected, the same reasoning holds good. Hence, if the negative is to be illuminated by the light reflected from a screen, the same care must be taken to secure a large expanse of reflecting surface should it be placed at any distance from it. These remarks have been made after seeing a set of hopeless failures to obtain proper enlargements from some excellent negatives. The lens employed was as near perfection as possible, and the central part of the positive was everything that could be desired. The unfortunate photographer could not understand why he failed to obtain satisfactory results at the margins. On inspecting his arrangements the writer at once saw that the failure was due to having placed a screen a good deal larger than the negative 12 inches away from the latter. The advice offered was taken, and when the screen was moved to within 3 inches the resulting positive showed no traces of under-exposure at the margins, or of over-exposure at the center.

There may be some few cases where it is desirable to curtail the full illumination at the margins. We allude to negatives taken with a wide-angle lens. In these the exposure given in the camera is often only half of that which is given at the center, and consequently the margins are usually less dense than at the center. By judiciously moving the ground-glass screen away from the negative more exposure may be given to the central part than to the margins, and the positive made will then be more correct than would be hoped for if the illumination throughout the negative were made uniform.

W. de W. Abney.

"HOW HE LEARNED TO COLOR SLIDES."

"HE" was an artist with a slight knowledge of photography. Returning from a sketching tour in England, during which the camera and the color box were close companions, he utilized his photographic results in the preparation of a set of slides. Determining to use color, and having no experience in tinting slides, he cast about for friendly help, and found nothing to meet his wants so thoroughly as D. L. Elmendorf's excellent brochure entitled "Lantern Slides, and How to Make and Color Them." Equipped with this book and an assortment of Elmendorf's colors, he set to work, and thinking that some of his comrades of the photographic fraternity might profit by his experience, he has hereunto set forth the same.

It goes without saying that an eye for color is an essential part of the outfit. Without this, the slide-maker must necessarily confine his color work to the rendition of conventional effects, and to copying the styles of colorists of recognized ability. With the sense of color developed, however, the work is in its leading principles identical with the method of water-color painting in transparent washes. A principle to be followed is, blend the tints on the picture, not on the palette, *i. e.*, if a combination of two or more colors is to be used, lay on the lightest tint first, and afterward pass over it successive washes of the other tints. This insures purity of tone, an absolute essential in a picture to be viewed by transmitted light.

A point to be observed is the simplicity of the palette. Use as few colors as possible, and produce the intermediate tints by combinations of these—"He" used in landscape effects six colors, viz., blue No. 1, blue No. 2, lemon-yellow, orange, maroon, vermilion. The other colors are useful in figure subjects, interiors, or drapery, but for scenery the foregoing list is all-sufficient.

So much for general principles. A few words now as to method of applying: Soft camel's-hair and sable brushes of various sizes should be used. The sable brushes should be of small size for use in the details of the picture. In laying on the first tints the following principle should be borne in mind: Laying on broad tints of color is simply directing the flow of colored liquid over the plate; and the brush should be regarded, not as a "driver" to force the color, but as a "director" to divert the flow.

Assuming that the colorist is provided with the materials before mentioned, and also with a china color slab divided into compartments (see the art stores), and with two water cups or glasses, one to supply water for reducing color, the other to wash brushes, the method of treatment should be as follows:

Seated at a table, facing the light, with a sheet of white blotting paper before the operator, hold the slide so that the reflected light from the paper shines through it. With a soft camel's-hair brush of about ½ inch diameter, go over the slide with clear water, holding it nearly flat. This should be done with even, light strokes, from left to right, as the purpose is only to soften the gelatine, and immersing the slide in water would soak it too much. When the slide is thoroughly and evenly moistened, proceed with a faint wash of orange tint over the entire surface, from the top downward. This will "set" in about a minute, when the second wash should be placed. This should be done as follows: Commence at the top of the sky with pure water; when one-third down to the horizon, add a little orange; when two-thirds down add a faint tint of vermilion, which strengthen as the horizon is reached. Carry this last tint over the distant hills, thinning with water as the work proceeds until it becomes colorless before reaching the foreground. When this last wash is set, but not absoluely dry, turn the slide upside down, and start with blue No. 1. Commence with pure water at the horizon, add the faintest suggestion of blue when one-quarter way down, then strengthen as before, by adding color to the supply of faint tint in the color slab, and continue strengthening until the top of the sky is reached. The slide should now be laid flat to dry for about five minutes. It would be well to have at least three slides under way at the same time, starting the second while the first is drying, and so on, then returning to the first for the next stage of the work. Taking the first slide (right side up), commence coloring the distance. If there are distant mountains, use first a light tint of No. 1 blue. For the nearer hills and masses of foliage, use No. 2 blue, qualified with a faint tint of maroon. For trees near by, use No. 2 blue and lemon-yellow for general tint, and for the shadows a mixture of maroon and lemon-yellow. The high lights on grasses and foliage in foreground should be produced with a strong lemon-yellow, with a faint tint of No. 2 blue in the darker portions. For rocks, No. 2 blue and maroon, and where mosses occur, a slight greenish tint, should be carried over the general tone. A good brown for roads or earth is obtained by a combination of orange and maroon.

It may sometimes be necessary to remove color from small spots which cannot be conveniently left out when putting in the broad washes (clouds, high lights on buildings, rocks, etc.). This can be done by using a sable brush charged with a weak solution of ammonia in the case of the following colors, viz., blue No. 1, maroon, vermilion. The other colors (blue No. 2, lemon-yellow, orange) are more refractory, and can only be removed with alcohol, used repeatedly.

In the foregoing nothing has been said as to cloud effects, sunsets, moonlights, drapery, or treatment of animals and figures. The prime object has been to describe the general principles governing the use of color on gelatine plates. The coloring of collodion plates requires entirely different treatment, and must be separately considered. If, however, the experimentalist wishes to color a wet-plate slide, it can be done easily by taking a new lantern-slide plate in the darkroom, immersing in hypo solution until thoroughly transparent, then washing and drying. Then take this plate and the slide to be colored, place them back to back, with the slide face downward, and with a drop of water between them to ensure contact. A rubber band at each end will hold the slide and plate together, and the coloring can be done on the gelatine side of the transparent plate, which is now uppermost. When dry, reverse the plate, bringing the surfaces together; mat, and bind. This ensures the preservation of what may be a valuable slide, and permits the substitution of another plate, if the first is not successful.

In conclusion, a word of warning, and that quoted, "Don't *color* lantern shades, but *tint* them."

W. H. Coughlin,
Educational Director Brooklyn
Young Men's Christian
Association, Central Branch.

UTILIZING SPOILT NEGATIVES AS PLATES FOR ETCHING.

THE following suggestion will, perhaps, commend itself to the reader who, by faulty manipulation or otherwise, produces many negatives that are useless. To convert the spoiled negatives into plates for etching, proceed in the following manner. One can tell during development whether the negative is a failure or a success. If the former, do not put it away just as it is, or break it as being useless, but expose it to the action of light, either artificial or daylight. Immerse it again in the developer, and the plate will naturally develop all over to a dense black deposit. Though some signs of the picture may be seen by reflected light on the back of the plate, all traces of it will be obliterated when viewed by transmitted light. After giving the plate a rinse under the tap, and allowing it to dry, it is ready to be etched upon.

There is no need to use the fixing bath, as all the residual silver salts have been acted upon by the developer and by the light.

A penknife and three or four needles set in handles are the tools required. The needles must be strong, and should be broken off short, so as to project about a quarter of an inch from the handles (for which wooden penholders are suitable), as they must be quite rigid and have no spring.

Sketch the outlines of the picture on the film with a lead pencil before commencing to etch. Then with a needle point scratch firmly on the film. This produces a fine, clear line that leaves the glass underneath exposed. When drawing long, straight lines, the needle should be guided by a rule. The penknife blade is useful for producing strong, thick lines, and for removing large portions of the film.

The intermediate tint, or what is known as half-tone, is arrived at by the use of lines, broad or fine, close together, or wide apart, exactly as is done in pen-and-ink drawing. It must be remembered that where the film is left untouched a pure white will be the result in the final print, and where the film is removed a perfect black will be the result. The advantage of the process over copperplate etching is shown when the plate is finished, for both in rectifying effects on the plate and in taking proof prints the operations are of the simplest description.

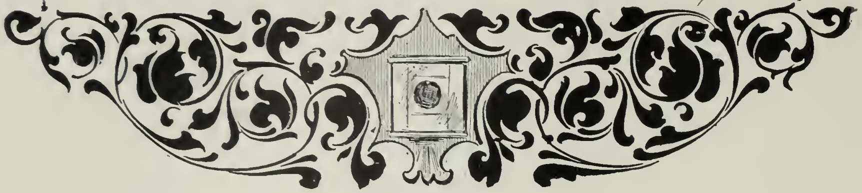
To take the prints, a piece of bromide paper is exposed behind the plate, and developed and fixed in the usual way. Any part of the picture that it may be desirable to remove can be blocked out on the plate with thick Indian ink, while additional touches can be given to the negative where required.

In an hour or an hour and a half a dozen pure black and white prints can be turned out, and they will be as permanent as if executed in printer's ink.

As every conceivable effect can be obtained, there is little use offering any advice as to the style of drawing to be adopted.

E. E. F., in *The Photo News.*

SOCIETIES



THE Columbia Photographic Society, of Philadelphia, is making great efforts to enlarge its membership, and offers unusual inducements to resident photographers. The club house, 1811 North Broad street, is well equipped, having a large parlor, pool and billiard-room, smoking-room, board and committee-room, society, library and demonstrating room, locker and printing room, six developing rooms, toning and mounting room, enlarging-room, and two large rooms fitted up as a studio. The following competitions have been arranged: Buchanan Prize Contest, January 11th; prize, $10. Lantern-Slide Contest, February 8th; prize, $5. Enlargement Contest, March 8th, prize, $5; the prizes being in gold or gold medal at the option of the prize winners. The Secretary's address is John A. Reeve, 203 Walnut Place, Room 4, Philadelphia, Pa.

* * *

AT the convention of the Photographers' Association of Pennsylvania, one of the most interesting events was the complimentary entertainment presented by Mr. W. P. Buchanan, the well-known and highly popular Philadelphia photographic stock dealer. The slides used were selected from collections made by some of the best slide-makers, and the subjects included the famous "Mascot," Cuba, India, Japan, Alaska, and the X-ray photography.

* * *

AT San José, California, a meeting of amateurs was called for the 17th of last November to meet in the law offices of C. E. Goodsell, for the purpose of organizing a club.

The attendance was much larger than was expected, and Constitution and By-Laws, similar to those of the California Camera Club, were adopted. A committee was appointed to secure club rooms, and the meeting adjourned for one week, at which time officers were elected for 1897 as follows: Geo. C. Meeker, President; M. R. Gibson, First Vice-President; A. Schoenheit, Second Vice-President; James Gally, Secretary; C. E. Goodsell, Corresponding Secretary, address, Bank of San José Building; R. E. Collins, Jr., Treasurer; C. E. Bried, Librarian.

The membership of the club is now about seventy-five and is still increasing. Monthly meetings are to be held on the first Tuesday of each month, and at each meeting there will be arranged lectures or exhibitions of some kind.

A fine suite of rooms have been fitted up in the Safe Deposit Block, in which the light is unusually good. The darkrooms and printing-rooms are superior to any in San José, and the reading-room will be provided with all the leading photographic periodicals.

On Tuesday evening, January 5th, the first meeting was held in the new rooms and brought out about fifty members who made the opening meeting an enthusiastic one. After the routine of business was transacted, the Lantern Slide Committee took charge and conducted a highly entertaining exhibition. About seventy-five views were thrown upon the screen.

The slides embraced scenes in and about San José and throughout the State generally that had been made by various members of the Club. Questions and friendly criticisms brought out much valuable information and made the affair a source of profit as well as a delightful entertainment.

Preparations are being made for a public print exhibit on April 6th, the advertising posters for which will be selected by competitive exhibits in the club rooms.

Interior work in competition was also planned for the purpose of showing the quality of pictures that could be taken in the club rooms.

PROCESS WORK

ASBESTOS IN PHOTO-MECHANICAL PROCESS WORK AND EMULSION-MAKING.

MOST persons are familiar with the mineral, or, rather, the peculiar forms assumed by several minerals, termed asbestos. This name—from the Greek language, and translated by our word, "unconsumable"—is very appropriate, for this substance easily withstands the action of fire—a characteristic which makes it one of the best non-conductors of heat known. Its properties were known in ancient times, the Greeks and other nations making use of it for cloths to wrap around the bodies of the dead when burned on the funeral pyre, for napkins, towels, and other articles of household use, which, when soiled, were readily cleansed by simply throwing into the fire. It is said that Charlemagne had a table-cloth of it, and after banquets was accustomed to astonish his guests by having it cast upon the blazing logs, where it remained intact, and was freed from stains of food and wine.

Asbestos, of recent years, has been put to many different uses, such as rendering buildings fire-proof, covering steam pipes and steam boilers, lining furnaces, heaters, retorts and ranges, insulating ice cars, refrigerators, walls and floors of cold storage warehouses. It is manufactured into a cloth, out of which theater curtains, aprons, mittens, suits of clothing, are made for protection against fire, heat, and red-hot metal—the articles being sewn with a thread formed of the mineral. In the kitchen it will be found in the shape of an oven, stove mat, baking paper to regulate the browning of meats and breads, towels, which are "washed" by casting into the fire-box of the stove, and in various other shapes.

Those who are engaged in the photo-mechanical arts, or in the making of dry-plate emulsions, can in their work employ asbestos to advantage. A person studying either the photo-mechanical processes or emulsion-making cannot help noticing the stress all writers on the subjects place on the suitableness of the oven or drying box required in certain kinds of work.

One of the strongest points insisted upon is that a steady degree of heat shall be maintained during the time the plate is in the box or the emulsion is cooking. Now an oven can be constructed in which asbestos is the chief article used, and so fulfill this requirement. This can be planned after the one invented by Edward Atkinson, Esq., LL.D., Ph.D., of Boston, Mass. Some years ago, while studying the relative values of the nutritious qualities of different articles of food used by mankind, Mr. Atkinson became convinced that there was a costly and needless waste of heat when food was cooked by the ordinary kitchen stove, and set about finding a remedy for the evil. After much investigating and experimenting, he invented the "Aladdin" oven, which has proven a remarkable success.

This invention was patented by Mr. Atkinson, and though his experiments in completing his oven cost him a considerable sum of money, he says: "I retain for personal convenience the name of 'Aladdin oven' as a trade-mark to be affixed to such ovens as may be ordered from myself or from my agents. I have taken patents on the development of this oven, which are now dedicated to public use without claim on my part for royalty or compensation. My purpose in taking these patents

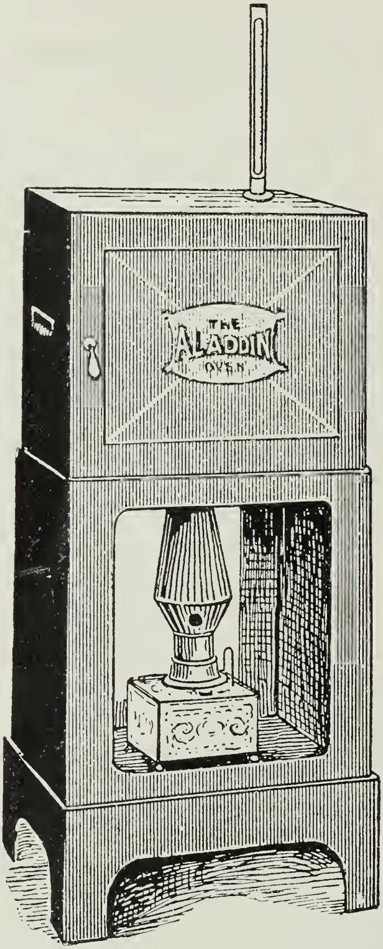
Copyright by Hervey Laney.

Photograph and Engraving by Hervey Laney.

CHARGE; DOWN CLOSER, JUDGIE.

was to protect my processes until they had been perfected, but I can add nothing more to the form or structure of the Aladdin oven as it is now made. Anyone who desires to do so is at liberty to make and use these ovens.” Below is a picture of the oven.

Mr. Atkinson, in a pamphlet entitled “Suggestions Regarding the Cooking of Food,” published by the United States Department of Agriculture, says: “After observing the irremediable faults of all our iron stoves and ranges, it occurred to me that the right way to apply heat to food material would be to box it up in a non-heat conducting chamber to which I could convey heat by measure and maintain it at any suitable and even temperature. This has been accomplished. Heat can be boxed up under an empty half barrel, under a common stable bucket, under a soap box lined with tin, or in an oven to which heat is conveyed through a hole in the bottom.”



The second illustration, on page 62, shows the construction of the oven.

A box is made of zinc, or some other material, or a frame is made. This is lined with some preparation of asbestos, according to the fancy of the constructor. The bottom of this box has an opening, which has a reducing plate to diminish the size of the opening when a greater heat is desired than can be had with full opening. The reducing plate may be constructed like the iris diaphragm of a lens, or two sliding plates of metal will do. It should not close completely, but should leave a round hole larger than the top of a lamp chimney. The inner oven is made of sheet iron, set on legs of iron. It will be seen that there is no opening in the bottom of the inner oven. The heat circulates around the outside of the inner oven, and the products of combustion escape by way of the same opening through which the heat passes. At the bottom of this inner oven is a metallic slab to distribute the heat, or the slab may be of soapstone. A small pipe, *J*, runs into this oven to ventilate it (the top of the pipe screwing off), and if it is desired, a similar pipe (or two) could be inserted at the side of the oven, below *G*, to admit fresh air. In this case, openings could be made at the alternate ends of the metallic shelves to allow the air to circulate over the drying plates, or the shelves could be of wire netting. A thermometer is inserted in the ventilator, but this could be in another part of the top of the oven, so arranged that the bulb projected into the inner oven. The outer oven rests upon a metallic table, and it is desirable to have this metallic table rest upon another one to hold the lamp; the upper table has an open top, the lower a closed one. The door of the inner oven swings sideways on hinges at the right. The door of the outer oven is fitted with hinges on the lower side, so that when let down it may be held vertically; or, if desired for use as a shelf, it is furnished with chains which hold it in a horizontal position. The door of the outer oven should be lined with asbestos, and fit tightly. The outer oven may be of any material; even wood, coated with asbestos paint or plaster, would do, but it would likely carbonize with the heat, and therefore metal had better be used. It will be noticed that an ordinary kerosene oil lamp is the means of supplying the heat. Regarding this, Mr. Atkinson remarks: "The kerosene oil lamp is most effective, very easily managed, and the heat from kerosene oil costs less than gas in this country. I therefore use oil. If the top of the chimney of the lighted lamp be placed just under and as close as may be to this hole (in the reducing plate), so that the draught through the lamp chimney is not impaired, the heat may be accumulated within the box in proportion to the amount of oil consumed by a given wick, in ratio to the size and non-conducting properties of the box. The heat may be maintained at a very close measure for one hour, for twenty-four hours, or for any length of time." A well-kept lamp burns steadily, and, consequently, it is quite an easy matter to maintain a constant temperature of heat, even though the oven be left to take care of itself. Mr. Atkinson recommends the Bradley & Hubbard central duct lamp and the flat wick duplex Trench burner—the latter he considers the most scientific burner in use. Of course, gas or electricity can be the means of supplying the heat, if preferred, but oil answers every purpose.

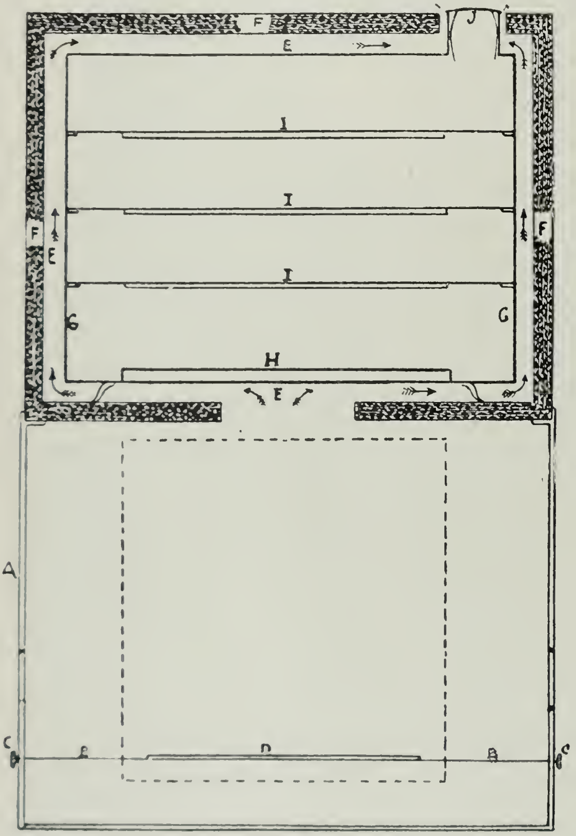
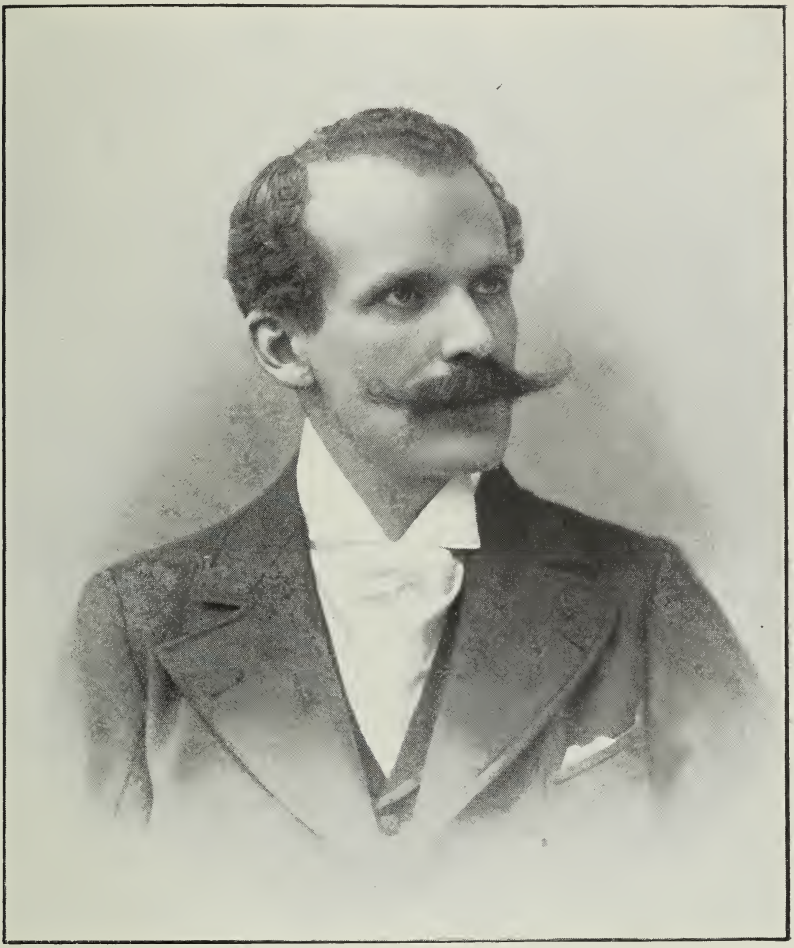


Fig. 2.

This oven, as will be noticed, is intended to replace the iron stove in the kitchen, which it more than substitutes. It is surprising what results can be obtained with the Aladdin oven; by slow and steady cooking the toughest of meats are made most palatable. The oven is easy to manage; a child, after little instruction, can do so. Fig. 2 shows different articles of food cooking at the same time, and when the oven is rightly managed, none of the articles are affected by odors of the others. These ovens are manufactured for sale by the Asbestos Paper Company, 71 Kilby street, Boston, Mass. For the No. 1 size (17 inches high, 17 inches wide, 15 inches deep), suitable to do the cooking for a family of eight to ten persons, the cost is $12; the No. 2, same size as the No. 1, but with a special thermometer in the door, costs $15. A full equipment (lamp, extra metallic table, pans, etc.), if ordered with the oven, costs $8. The oven, ready for shipment, weighs 50 pounds; with equipment, 75 pounds. They are in operation, and can be examined at the New England Kitchen, 485 Tremont street, Boston, Mass., and at the New England Kitchen, 341 Hudson street, New York City. Both of these institutions have been organized by some charitable ladies and gentlemen for the purpose of supplying working people with excellent and substantial food at cost prices. The Boston Kitchen, the older and better known of the two, has ten Aladdin ovens, and serves each day about one thousand noon lunches and three hundred suppers.

It seems to the writer that an oven constructed after that of Mr. Atkinson's will be found especially adapted for drying plates, etc., and as its arrangement is so



Mr. CARL HENTSCHEL.

Engraved by
Carl Hentschel, London, Eng.

simple, within the capabilities of any intelligent man to construct for his own use. The materials are readily obtainable, for zinc can be bought everywhere, and boxes made of it can be had of any tradesman handling that metal, from whom also can be had the inner iron stove. The air-cell lagging is made use of by plumbers, builders, setters of steam engines and furnaces, and can be procured at the business houses supplying materials to these tradesmen. The filling in with lagging or mineral wool necessitates that the outer box (see Fig. 2) shall be lined with metal, but this can be obviated if other asbestos products are used. The asbestos may be of "roll fire-felt" or "sheet fire-felt," manufactured by the H. W. Johns Company. The "roll" is 36 inches wide, from $\frac{3}{32}$ to ¼ of an inch thick, and sells at 6 to 10 cents per square foot, according to thickness. The "sheet" is 3 x 2 feet, from ½ to 2 inches thick, and sells at 15 to 35 cents per square foot. The "sheet" is quite light in weight, and seems to be well adapted to the purpose. Or an asbestos cement could be laid on the oven, of any desired degree of thickness. The H. W. Johns Company makes an "asbestos plastic stove lining" for stoves, ranges, furnaces, which is easily laid on with a trowel, will not warp, is fireproof, costs for 5-pound cans, 50 cents; for 10-pound cans, 75 cents, and for pails of 25 and 50 pounds, 5 cents per pound; also "asbestos retort cement," which adheres readily to stone, wood, or metal, is fireproof, can be applied with a trowel, hardens rapidly, vitrifies without shrinking, is not injured by nitric or sulphuric acids, petroleum oils, etc., costs 60 cents for 5-pound cans; $1 for 10-pound cans, and at 6 cents per pound for 25 and 50-pound pails. This also could be employed to coat etching tubs, etc. The same firm also manufactures "asbestos mill-board," acid and fireproof, in sheets 40 x 40 and 42 x 44 inches, from $\frac{1}{32}$ to ½ inch thick, the 40 x 40 sheets weighing (according to thickness) from 2 to 25 pounds each, and costing 10 cents per pound. It will be required to use this or the "sheet fire-felt" if the outer oven is simply a frame. The "mill-board" is heavier than the "sheet fire-felt"—the latter we consider the best material for the purpose. Of course, the thickness of the asbestos depends upon the size of the oven, but for an oven the size of the Aladdin about ½ inch would be sufficient. If when heating a zinc or copper plate, after dusting with resin powder or coating with enamel, a piece of this mill-board, or of "asbestos paper," or even one of the "asbestos stove mats," sold at household furnishing stores, is placed on the stove, or under the plate, it will be found that the heat is radiated capitally, and the metal is more evenly heated. Any of these materials can be placed under the can when boiling emulsions or dissolving glues, and it will act in the same manner, maintaining a steady heat and preventing burning. The asbestos paper is sold in packages of one dozen sheets, 9 x 14, at 10 cents per package, and the stove mats cost 5 or 10 cents each. Indeed, it would be a good plan to coat the outside of the boiling can with asbestos cement, to assist in maintaining a steady heat when in the water bath.

Both asbestos cloth and asbestos fiber are used for filtering chemical solutions, and are purified by putting in the fire. The cloth is made into towels for washing and wiping vessels. It can be folded up to protect the hands when taking off anything hot, though it will not be required when grasping a glass of "hot Scotch." The cloth is of three thicknesses, from 25 to 36 inches wide, and costs from $1.90 to $3.50 per yard. Asbestos mittens and gloves are also procurable; they range in price from $2.20 to $2.85 per pair. We have specified only a few of the uses to which asbestos may be put.

A lady once said in our hearing that, "A man was always thinking of something good to eat," and, assuming she was correct in her remark, we will return to Mr Atkinson's cooking oven, which has now been tested for a number of years, and is highly praised by those persons who have it. By his method of cooking, the food is much more nutritious and palatable than when done by the ordinary stove, and is much more economical, as what are considered undesirable cuts of meats can be made into tasty dishes. The process man, who has one of the Aladdin ovens, could, after cooking his plates, turn it over to the "Missus," who then could cook the dinner, and then, as the oven almost takes care of itself, what a boon it is to the bachelor. All the poor, lone man has to do at night is to put his breakfast into the oven, light the lamp, say his prayers, and get under the covers of his bed, conscious that when he arises in the morning he will have his meal ready and nicely cooked, and he can fix up his dinner before going down town to business, let the oven do its part, and, on returning home, sit down to a satisfactory repast. A Boston newspaper man carried out this plan, and has published his "experiences." The United States Department of Agriculture at Washington has published two pamphlets—"Suggestions Regarding the Cooking of Food," by Edward Atkinson, and "Suggestions for the Establishment of Food Laboratories," Office of Experiment Stations, Bulletin No. 17—which describes Mr. Atkinson's invention. These pamphlets can be obtained gratis from the Department.

H. T. DUFFIELD.

THE CAMERA CLUB, NEW YORK.

PEN DRAWING FOR LINE BLOCKS.

BENEDICT & COMPANY, engravers, Chicago, give this advice: A smooth, white surface is a first requisite. Fair drawings may be made on the best quality of unruled writing paper, but good Bristol board is better. For some drawings the "double enameled board" is excellent, as the blacks may be laid on full with a brush, and the white lines produced afterward by scratching through the ink and enamel with a steel point. Whatman's drawing paper, or any paper with a rough surface, is unfit for the purpose. Use an india-ink that will produce a perfectly black line, or photo-drawing ink. If the lines are pale, brown, gray, or broken, they will come out feeble and imperfect in the plate. All lines, therefore, the finest as well as the coarsest, should be perfectly black. Grades of color must be produced, not by varying degrees of paleness, but by the size and space between the lines. Use a pen that will give a fine, even line. Steel pens are best. Gillott's Nos. 170 and 290 are excellent. For a fine quality of engraving make the drawings twice the length and width of the plate desired. Reckon seventy to one hundred lines to the inch as the fineness of the plate, and make accordingly one-half as many in the drawing. But take care that the lines are not so fine nor so close as to make a plate that will fill up in printing. Always make sets of drawings for the same reduction, as it obviates the necessity of making separate negatives. Very good work can be done from drawings made one-half or one-third larger than the required plate. Drawings should not be made in reverse. Make the pencil lines with blue pencil, as blue will not photograph. Never cross-hatch till the first set of lines is perfectly dry. Erase all pencil marks, taking care not to remove any of the ink. Keep a blotting pad under the hand, but do not use it to take up ink from the drawing. Leave a margin of half an inch around each drawing, for tacking on the camera board. White lines may easily be drawn over black ones. Apply best Chinese white with a quick stroke from a full pen or brush. Mix it thick, and do not go over a line the second time until the first is quite dry.

PROCESS NOTES.

FLECK writes that, so far as he is aware, there has hitherto been no practical use of steel for photogravure. He says that it is, indeed, an open question whether it has yet been tried, and yet it is simple, easy and practical. A photogravure etched in copper must be cleaned off and hardened, after an edition of some one thousand copies has been printed from it. If the etching is made directly on steel, labor and loss of time during cleaning and hardening would be saved, and sharp prints would be obtained throughout the whole edition. Fleck claims also that the process is easier, the progress of the etching being more easily watched than when copper is employed. Chloride of iron also etches steel better than it does copper and is the best etching medium, bearing the same relation to steel as nitric acid to zinc.

◆

At a recent lecture on the preparation of plates for collotype printing, Mr. Wilkinson emphasized the necessity of avoiding damp and of maintaining throughout an uniform temperature. Very thick plate glass is carefully ground upon one side by rubbing with fine flour emery for some minutes. It is then coated with a substratum consisting of 4 ounces each four-ale and porter, 4 to 12 drops of ammonia, .880, to which is added 1 ounce of silicate of soda just before using. After drying, the plates are rinsed under the tap for a few moments, and again dried, when they can be kept indefinitely. For the sensitizing process an oven will be required, and kept at a temperature of not more than 120 degrees. A stock solution is made of: Methylated spirits, 1 pint; tincture of tolu, 1 ounce; chromic acid, 5 grains; and the sensitizing mixture consists of collotype gelatine (Swiss), 150 grains; water, 2 ounces; potassium bichromate, 37 grains; above stock solution, 1 ounce. The spirits must be added gradually, and the solution well stirred. Of this solution 4 to 5 minims will be required per square inch of plate for coating. The plate is then placed in an oven and "cooked" for forty-five minutes. A reversed negative is required for printing, the margin of which must be "blocked out" with tinfoil. The prepared plates should be kept from one to fourteen days face to face before printing. Mr. Wilkinson recommends an open-back printing frame, in which an average exposure of thirty minutes to good (but not sun) light, or several hours in dull weather, will be necessary. After exposure the plate must be washed for a few hours to remove the free bichromate.

◆

PREPARATION OF LITHOGRAPHIC STONES FOR FINE ENGRAVINGS.—The following method is given by *The Paper Digest*, translated from a German contemporary:

"Dilute liquid gum arabic in oxalic acid, and rub it with a flannel rag on the surface of the stone until thoroughly dry. It is generally known that by this process the polish of the surface is materially enhanced. But it is a question whether the use of the acid is not prejudicial to the excellence of engravings which are intended for conservation during many years.

"The following polishing process is, therefore, recommended: After the stone has been cleanly polished, it is coated over with a caustic solution of gum, which, after drying, is carefully washed off.

The stone is then rubbed off with so-called lead paper, some fine emery, and water for a few minutes, whereby the excess of roughness is removed from the surface. After this is washed off again, the surface is polished with a ball and a small knife point of tin ash and brimstone and some water, whereby in a few minutes it will secure the most perfect gloss. The stone is washed off, and can be stored away until needed for use.

"Stones polished in that manner, on account of their great smoothness, retain just as little color as copper plates, and the gummy preparation keeps them clean as well as oxalic acid would do, without possessing the latter's detrimental properties."

* * *

THE *Artist* is quoted as saying that process would touch perfection by 1900 A. D., provided it continues improving at like pace with what it has recently accomplished. Then, and not till then, will comparison between its possibilities and those of wood engraving be adequate. Wood engraving is a perfected art, and the *Artist's* idea that process must have reached its highest point of excellence before a just idea can be had by comparing the two is a good one. Unfortunately, the arts (says *Paper and Press*), like everything else, are subject to reverses, and the infusion of commercialism into process work will sadly militate against anything like perfection unless the point of view of its votaries is radically changed. Process work must be regarded as an artistic avocation before the best that is in it can be brought out. Nowadays, it is in danger of becoming a manufacturing industry.

* * *

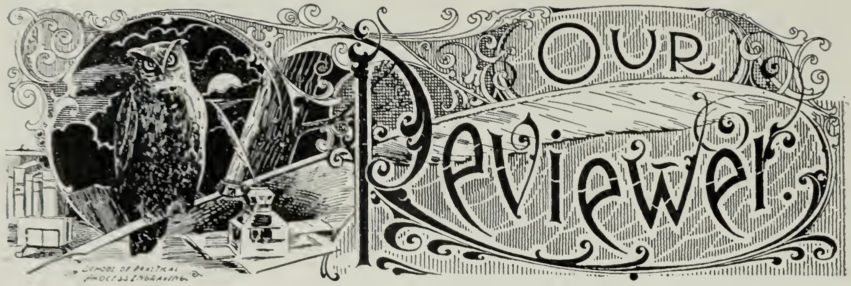
A VERY valuable, in fact, a necessary, addition to darkroom facilities when using process dry plates is a soft piece of chamois skin, or wash leather. This should be wetted and then wrung out as dry as possible. After the gelatine negative is fixed and washed, the chamois is formed into a pad and the face of the plate patted gently with it. This removes the excess of moisture from the gelatine. The back and edges of the plate are then wiped dry, when the negative is ready for its bath of alcohol before the final drying.

* * *

THE following has been suggested as a clearing medium for process negatives instead of the iodine and cyanide commonly used:

Potassium ferricyanide (10 per cent. solution)	1 part,
Potassium cyanide (2½ per cent. solution)	50 parts.
Water	50 "

If the whole of the negative is to be submitted to the action of the reducing solution, it is placed in a black dish, it being much easier to tell when the lines are clear if the negative is on a dark ground. The above solution is poured over the negative, and directly after the lines are cleared, the negative is quickly washed under the tap.


OUR
Reviewer.
School of Practical Process Engraving

H. A. Hyatt sends us a copy of his new illustrated catalogue, No. 14. This is a particularly interesting list, is compiled with the utmost care, and is right up to date. We would advise those interested in the progress of our art to write for a copy.

Commenting on Edward P. Thompson's book on "Röntgen Rays," reviewed here a month or so ago, Lord Kelvin writes :

" I received it only a few days ago, but I have already looked nearly all through it, with great interest. I have seen enough to know that I shall find much most useful information in it which will be always readily available, because of the very excellent method and care with which you have given references to authors, dates and publications, and I am sure that all who are interested in the subject will find your book exceedingly valuable.

" All your statements with reference to anything I have done on the subject are perfectly correct.

" I believe that hitherto nothing in the way of diffraction has been discovered for the Röntgen Rays,"

The Sanders Engraving Company send us a copy of their new specimen book, which shows that our St. Louis friends are well in the front on process matters. Those interested in fine half-tone work should apply for a copy of this specimen book.

From Percy Lund, Humphries & Co., Limited, we receive No. 11 of the The Popular Photographic Series, *The Camera and the Pen*, by T. C. Hepworth This is a capital work on the combined use of pen and camera for the production of blocks for illustration. Price, 25 cents.

The first number of *The Engraver and Electrotyper*, published by William Hughes, Fisher Building, Chicago, is to hand. The contents are written in chatty style, and intended for the general trade. We presume that the paper will soon take on a more ambitious appearance, for it is published in a center of photo-engraving that is second to none.

The Magic Lantern Journal and Photographic Enlarger Almanac and Annual for 1896-97 has been accorded a hearty reception, and is a publication that all interested in lantern matters should possess. The Use of Saturators, The Lantern in Advertising, Hints to Beginners, and a whole host of articles by competent writers, make the book a notable one.

Our illustrations again demonstrate the superior qualities of the cross-line screens issued by our publishers. These screens are particularly suited to all classes of half-tone work, and beginners in process work can obtain trial sizes at a low cost, with which much experimental work may be conducted.

It is said that an American paper-making firm will establish a mill in England, the object being to supply English publishers with paper of quality similar to that used here for high-class work.

But a few copies of the ninth volume of " The International Annual " remain unsold, and those of our readers who desire a copy should make immediate application for one. This volume is a particularly interesting one, and contains many illustrations that can be studied with profit.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

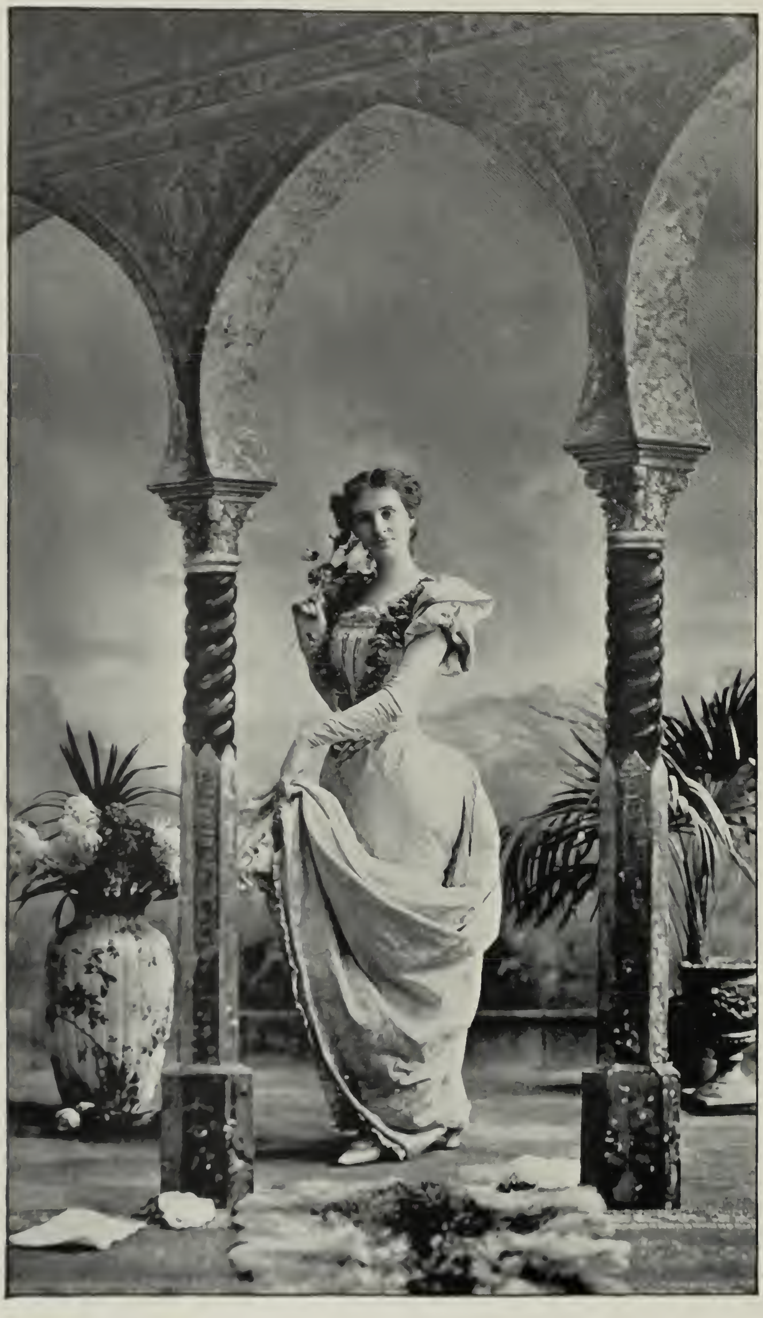


PHOTO FROM DANA'S BROOKLYN STUDIO.

STUDY IN POSING.

ENGRAVED WITH RICHARDS' CROSS-LINE SCREEN, 150 LINES.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.

W. I. SCANDLIN.

VOL. XXVIII. MARCH, 1897. NO. 3.

THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA CONVENTION.

WHILE a very considerable time still remains before the photographers of America will be expected to assemble in convention for the year 1897, we do not consider it ill-timed to say a word of warning and preparation in advance, even at this early date. We take it for granted that every reader of the BULLETIN, at least, intends to be at Chautauqua to attend this Convention, and shall hope to see a large proportion represented in the various classes of work exhibited. Many, doubtless, have had the matter in mind all through the past months, and a great deal of work has been done in preparation for the exhibition. To those who have not yet started, however, we would say that it is not too late to begin, and would urge one and all to make their plans in advance, so that the Convention of 1897 may be the banner convention in the history of the Association. Full classes of exhibits and a high quality of work should be the watchwords, and a strong turnout of the photographic fraternity with ladies should be in evidence to enjoy the good things that will be provided. Those who attended the Convention last year need not be told of the perfection of arrangements for their comfort and pleasure. The natural beauties of the place are unequaled, and everything that could be done to add to the comfort and convenience of the visitors was carefully attended to by the very efficient committee who had the matter in charge. We can promise that equal care and diligence will be used in the preparations for the forthcoming convention. A source of regret among many last year was that they had not provided themselves with hand cameras

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by which they might have taken home with them many reminders of the trip. It is needless to predict that this will be rectified in their cases, and this word may be of profit to others intending to attend.

The nearness of Niagara Falls, and the probability that excursions will be arranged to that place, give an additional reason for the hand camera's presence at the Convention. The BULLETIN stands ready, as last year, to organize itself into a bureau of information, and in a subsequent edition will note details of arrangements which it can secure in the way of hotel accommodations, special train service and other matters of interest in that direction. In the meantime let us keep constantly before us the thought that the Convention of 1897 is to be the best that has ever been held, and that it can only be so by our personal interest and enthusiasm.

THE LOCAL REDUCTION OF A NEGATIVE.

WITH a view to ascertaining what could be done in the way of local reduction, a negative was lately made with a wide angle lens, smallest diaphragm, on a Climax plate, without previous backing, under the following conditions: The camera was placed directly facing the light from three good-sized windows, having before them lace curtains and the ordinary straw-colored shades. An exposure of twenty-eight minutes was given with the stop above named, the shades and curtains being closely drawn. The shades were then raised and a two-minute exposure given with a stop about three times the diameter of the first, the light outside being faint and gray during the whole exposure. The resulting negative, while it was, of course, much too dense in the windows, showed very good detail in the room itself, possessing the advantage of a naturally lighted interior as viewed under ordinary conditions. After being thoroughly dried, the density in the windows was rubbed down with alcohol applied on a piece of chamois leather with considerable vigor. A very considerable reduction was obtained without the least injury to the negative, and a printing negative of excellent quality resulted. One thing which appeared somewhat unusual was that scarcely the faintest trace of halation existed outside the lines of density represented by the frames of the windows themselves.

* * *

THE death of M. C. Berthiot, the eminent optician of Paris, is announced. It is claimed that to him belongs the honor of having suggested and patented the use of color screens with parallel faces; but this improvement having been introduced when orthochromatic plates were little used, but slight attention was paid to the discovery at the time.

* * *

THE best evidence of the value of Volume IX of "The International Annual" is to be found in the fact that only a small number of copies remain unsold. All readers of the BULLETIN should be possessed of a copy. It is a valuable reference book for the photographic library.

A COMBINED GOLD-PLATINUM TONING FOR MATT-COLLODION PAPER.

By Prof. A. Lainer.

If, in platinum toning of matt-collodion paper, one of the ordinary toning processes is applied, a considerable variation in tone will sometimes be observed. Brownish color tones will vary with more or less black, violet or blue-black color tones without any visible reason, because the proper description of manipulation is overlooked at the expense of the formula. I took pains to find the cause of these irregularities in platinum toning, so as to make sure of obtaining certain color tones, and during my experiments came upon a gold and platinum process which gives very reliable results. I obtained with this bath a peculiar gray-black platinum tone, which I had never seen before, showing an extreme clearness of delineation and very fine whites. This gray-black color tone is very effective, and might find frequent application alongside of the warmer, purely black, brown, blue or violet-black color tones, which can be produced by the same process.

To begin with my experiments, I selected:

(1) The gold toning with the acetate of soda and borax gold bath, and the platinum bath containing phosphate of soda.

(2) The method of Rhenanus (as communicated by me in *Neumann's Revue*), with previous platinum toning, and subsequent rhodan gold bath.

Both processes gave me handsome black platinum tones; but frequently brown color tones are also obtained. The following way of manipulation will insure satisfactory work. The principal condition is to follow faithfully the description of the several operations, and to avoid particularly all contamination with hypo soda. If the hands have come in contact with fixing soda, finger-marks will appear in red spots on the paper, even after careful washing of the hands and washing the paper, spreading towards the center of the picture like the tail of a comet, and refusing to tone; even the platinum bath will finally lose its capacity of effective toning.

At all events, it is recommended to study at first the toning process with only a few prints, and be guided by the following remarks:

The manner of expression for the several shades of the more or less black-toned pictures is not precise enough to fully designate the color tone, as I repeatedly found that observers, to whom were shown the differently toned prints singly and one after another, would differently designate a certain color tone; also that, with few exceptions, all gave preference to the new gray-black tone instead of the warmer black, brown, or violet black tones.

The gold and platinum toning, described in the following, consists of five principal operations, and is the result of many experiments:

(*1*) The strongly printed pictures are placed singly into a dish with water, and are washed for at least ten to fifteen minutes by changing the water twice.

Care should be taken that the prints do not stick together.

Too long-continued washing, treatment with hot water, addition of chloride of sodium or muriatic acid to the water prevents a platinum toning completely. If the washing of the prints is, however, neglected, the toning will proceed in the platinum toning bath without any previous gold toning, and good sepia brown tones are obtained after fixing, which can be turned into black tones in the clearing bath (*5*). One defect, however, is the quick discoloration of the platinum bath in consequence of secreted chloride of silver.

(*2*) The washed prints are toned in the gold bath for a few seconds, until the red tone has passed into a brown one.

STOCK SOLUTIONS.

A.

Acetate soda	10 grams.
Borax	10 "
Water	1,000 cubic centimeters.

B.

Brown chloride of gold	1 gram.
Water	100 cubic centimeters.

Before use, mix 100 cubic centimeters, Solution "A," and 2 cubic centimeters, Solution "B." After the gold toning, the prints are placed in water.

As can be seen from Point No. 1, this gold toning is not necessarily required, but it is not without influence upon the clearness of the final tone, and should never be left out, if the gray-black tones are desired, as in the clearing bath a quicker and more complete bleaching of the brownish color tones will take place. If warmer brown or brownish black tones are desired, the print, after a short washing, can be put directly into the platinum toning bath.

(*3*) The prints are put singly into the platinum toning bath, and toned until the appearance of the dark violet to blue-back tone.

The platinum bath may be prepared as follows:

Phosphoric acid	2.5 cubic centimeters.
Potassium chloride of platinum, 1 : 10	2 " "
Water	100 " "

This bath colors, in fresh good condition at once. If the brown color tone of the prints does not pass sufficiently quick into violet, the bath should be replaced by a new one, and the dish cleaned thoroughly. The addition of fresh platinum bath to one spoiled by fixing soda, for instance, is useless and to no purpose.

In such a platinum bath the color tones will not reach beyond red-violet. In the subsequent fixing bath such prints will become reddish brown, and in the potassium bath, blue to blue-violet. In the fresh platinum bath they will pass quickly to dark violet and blue-black. Prints of thin negatives become finally gray, while prints of strong negatives assume an intensely black color. With short platinum toning, warmer tones resulted in the subsequent fixing bath with more prolonged toning, and it is hardly possible to direct the toning of prints from differently dense negatives in such a way that equal tones result in the fixing bath. With regard to this the following clearing bath will act harmoniously, and in this direction has a value not to be underrated.

(*4*) After the platinum toning the prints were submitted to a short washing, to remove the phosphoric acid completely, and then fixed for five minutes in a fixing soda bath, 1 : 10. If the sulphur toning is to be completely excluded, the acid fixing bath recommended by me for dry plates, or the fixing bath containing sulphite of soda, recommended in the December number of the *Correspondenz*, may be used. It is very important to have the fixing bath always fresh, and, when large quantities of pictures are to be printed, to renew the same, and not to fix the whole number in the same bath.

After fixing, the prints are washed within twenty minutes in a four to five times change of water, and, if the final tone is satisfactory, mounted at once.

If the color-tone is to pass into a pure black or gray to blue black, a washing of five minutes, with several changes of water, is satisfactory. In the clearing bath a larger number of pictures may be put at once.

(*5*) The clearing bath is a rhodan gold bath, and is made as follows:

Rhodan ammonium	100 grams.
Chloride of gold and potassium, 1 : 100	20 cubic centimeters.
Water	1,000 " "

The clearing bath can be used repeatedly. It should only be kept clear by filtration. For the market it may also be ready prepared :

Rhodan ammonium (dissolved)	100 grams.
Water	100 cubic centimeters.
Gold rhodamin solution	20 " "

Each 20 cubic centimeters of this concentrated clearing bath are diluted with 80 cubic centimeters of water.

The clearing bath produces a uniform color-tone, and determines according to the duration of the action (five to fifteen minutes) the color shade of the final tone.

Translated by
HENRY DIETRICH.

THE following query is received from *Student :* "Among your subscribers some may, like myself, be at times so situated that fresh water is lacking for the purpose of thoroughly rinsing the developed and fixed plates. Can you kindly let me know through your valued pages whether it would be safe to use ocean water for the proper and necessary washing in order to remove the hypo ?"

Answering this question, our own experience does not cover any such contingency, and we are unable to say whether this treatment might or might not be safe. A trial would easily demonstrate, however.

If any of the readers of the BULLETIN have had experience in this direction, we should be glad to know of it.

All copy for the April issue should be in our hands on or before March 15th.

Items of Interest

TWO photographs have been sent us by Mr. E. E. Weatherby, of Plymouth, O., which show a field for photography that seems to be possible of being worked to good advantage in many directions. These photographs show different stages in the process of celery cultivation, and are very interesting indeed. The fields shown in the photographs cover 5 and 10 acres each respectively, and show, among other things, the remarkably rapid growth of this plant. One gets a good idea from the photographs of the enormous scale upon which this industry is carried on in certain sections of the country, which is almost impossible without such an aid to the imagination.

* * *

If our good friend, Mr. Strauss, deals as summarily with the citizens of St. Louis and vicinity as with the editor of the BULLETIN, as shown by the following subpœna, we predict for him an unprecedented success, but none more than we wish him.—*Editor.*

SUBPŒNA DUCES TECUM.

STATE OF MISSOURI, } *ss.*
CITY OF SAINT LOUIS, }

To the Editor of Anthony's Photographic BULLETIN :

OF THE CITY OF NEW YORK, STATE OF NEW YORK.

GREETING : You are hereby Commanded, That, setting aside all manner of excuse and delay, you appear before His Honor, Gustave Cramer, Chief Justice, at his Court Room, Strauss' New Studio Building, at the City of Saint Louis, State of Missouri, on Sunday, the twenty-eighth day of February, in the year of our Lord, Eighteen Hundred and Ninety-seven, at 10 o'clock A. M., there to be and remain subject to the command of Honourable Jason Crawford, Somerville, High Sheriff, until by him released, then and there to testify—and nothing but the truth to say, without profanity and in sobriety—your opinion of the sanity of Julius Cæsar Strauss in erecting his new Studio, and herein you are in nowise to fail, on the peril of your life.

(Signed) CHIEF DEPUTY SHERIFF.

WITNESS : C. Bliss Woodward, Clerk of said Court, with the seal thereof affixed, done at the City of Saint Louis, State of Missouri, on this the 14th day of February, in the year Eighteen Hundred and Ninety-seven.

[SEAL.]

J. B. WOODWARD, *Clerk.*

Photo by Henry B. Vanderveer.

Engraved with Richards' Cross-Line Screen, 150 Lines.

THE WATERING PLACE.

We regret to announce the death of one of the oldest photographers in the State of Ohio, Mr. Thomas Spencer, who died on the 25th of January, at the age of eighty-two years.

◆

We find a very interesting article in *Photographic Life* in the shape of an interview with Mr. Paul Martin, who has achieved some fame on the other side, by his negatives of London by gaslight. Mr. Martin's method of working seems to be the selection of such a scene as will be sure to produce good reflections, as, for instance, water in the foreground, or perhaps a stretch of street, reflecting from the rain-covered pavement, lights from the street lamps in the neighborhood. Working with rather slow plates, and, using stop *f*/8, he varied his exposures, according to the amount of daylight left, from twenty-five to forty-five minutes, starting the exposure after sunset, but before all the light of the sun had left the sky. Mr. Martin's idea is that with this rather full exposure the street lamps and points of illumination come out as spots of light and give a much closer idea of the impression of street illumination than would be obtainable with a shorter exposure, and the conditions of exposure are such that exceeding great latitude is possible, inasmuch as rain is not always unwelcome, and people moving about before the lens do not interfere with the exposure. The results obtained by Mr. Martin seem to open up a field for experimental work, which is capable of a good deal of enlargement, and certainly will carry a great amount of interest to the amateur.

We shall be pleased to know if any of our readers experiment in this line, and what results they obtain.

◆

There is a rumor afloat to the effect that a big syndicate of German workers has been formed for the purpose of reproducing all the principal pictures in the British National Gallery by the three-color process, the idea being that these reproductions will be sold in portfolio form. It is said in this connection that handwork will be used largely to do what in the nature of things the camera cannot perform alone in the preparation of these color plates.

◆

At a recent meeting of the Grand Section of the Association Belge de Photographie, a statement was made by M. Goderous that the use of a diaphragm of about *f*/200 would obviate halation entirely, as the light would be so feeble that it would not penetrate the film. It would be interesting to know in this connection if the disadvantages from this feeble illumination were not sufficient to overcome the advantages, or, in other words, if the remedy is not worse than the disease.

◆

An interesting lantern experiment was recently shown before one of the English societies by Mr. Croft, in which he arranged a double lantern in such a manner that the discs partly overlapped one another; a sheet of green glass having been placed before one objective and the light decreased from the other until the illumination was about even, the effect was to make the overlapped part upon the screen apparently white, while the uncovered portion of the disc appeared red.

THE following has been suggested as a clearing medium for process negatives instead of the iodine and cyanide commonly used :

Potassium ferricyanide (10 per cent. solution)	1 part,
Potassium cyanide (2½ per cent. solution)	50 parts.
Water	50 "

If the whole of the negative is to be submitted to the action of the reducing solution, it is placed in a black dish, it being much easier to tell when the lines are clear if the negative is on a dark ground. The above solution is poured over the negative, and directly after the lines are cleared, the negative is quickly washed under the tap.

* * *

The Third Annual Convention of the Indiana Association of Progressive Photographers is announced at the Masonic Temple, Indianapolis, from March 2d to 5th, inclusive. A wide field of work is covered in the programme set forth, and a large collection of prizes and medals will be awarded to successful competitors in the various classes. We hope to be able to give the readers of the BULLETIN further reports of this Convention in another issue of the magazine.

PHOTOGRAPHS ON WATCH DIALS.*

FOR the production of photographic pictures on watch dials the following method of procedure is recommended: Beat the white of an egg, with addition of a little ammonia, to a white foam, add 300 cubic centimeters of water and beat again. After the egg has settled, filter and let the liquid run once over the dial, which has previously been thoroughly cleaned with ammonia. After the surplus has run off, coat once more and allow to dry. The sensitive collodion is now produced as follows: Dissolve 0.6 gram chloride of zinc in 20 cubic centimeters of alcohol, add 0.5 gram collodion cotton and 26 cubic centimeters of ether, and shake the whole forcibly. Then dissolve 1.5 grams of nitrate of silver in hot water, add 6 cubic centimeters of alcohol and keep the whole in solution by heating. The silver solution is now added in small quantities at a time to the collodion, which must have well settled. This, of course, is done in the darkroom. After twenty-four hours the emulsion is filtered by passing it through cotton moistened with alcohol. This durable collodion emulsion is now flowed in the usual way thinly upon the prepared watch dial, which, after the collodion has coagulated, is moved up and down in distilled water until the fatty stripes have disappeared. The water is then changed once, and the dial is, after a short immersion, left to dry upon blotting paper. It is now ready for exposure. Expose under the original in magnesium light and develop with a citrate oxalate developer or in the following hydroquinone developer:

Hydroquinone	4 grams.
Bromide of potassium	25 "
Sulphite of soda	48 "
Soda	10 "
Water	450 cubic centimeters.

After fixing and drying, coat with a transparent positive varnish.

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* *Photographische Chromik.*

In place of the developing process, the printing-out process with chloride of silver collodion can also be applied, with the advantage that the pictures can be toned. The collodion for this purpose is made in the following way:

Dissolve 8 grams collodion cotton in 100 cubic centimeters of ether and 100 cubic centimeters of alcohol, add 0.3 gram chloride of strontia, and then 0.2 gram chloride of lithium, which has previously been dissolved in 2 cubic centimeters of hot water. To this solution add also 1 gram citric acid, which has been dissolved in alcohol slightly heated. The solution is left standing for twenty-four hours and is then filtered through cotton. The prepared dial is coated in the ordinary way with this emulsion, and printed, after which it is toned as usual.

Translated by HENRY DIETRICH.

PHOTOGRAPHIC ASSOCIATION OF CANADA—1897 CONVENTION.

THE Executive Committee of the Photographic Association of Canada assembled on the afternoon of January 25th at the studio of Secretary Westlake, who escorted them to look at buildings in which to hold the coming annual convention and exhibition. The handsome new building of the Y. M. C. A. was inspected, and afterwards a visit paid to the upper flat of the Public Library, which was pronounced the most suitable place for the purpose.

The meeting was called to order shortly before 3 P.M., with President Hopkins in the chair.

Members present were: First Vice-President, J. T. Baikie, Chatham; Second Vice-President, A. S. Green, Berlin; Treasurer, J. G. Ramsey; Secretary, F. G. Westlake, London; Assistant Secretary, E. J. Burke, London.

Treasurer Ramsey reported that he had a balance in his possession of $92.

The Secretary reported on correspondence, which was found to be most satisfactory. The replies from all sources place the success of the convention and exhibition beyond question.

At the suggestion of President Hopkins, the engaging of Mr. D. R. Coover, of Chicago, as judge was left over for a while.

The President also suggested that the Executive Committee do not exhibit for prizes, but have their work scored only. The Committee concurred without a dissent.

Treasurer Ramsey said he thought the Toronto stock houses would undertake to provide the entertainment for the members at Springbank and at the banquet. He also agreed to interview them and report.

Some discussion followed as to whether the Y. M. C. A. or Public Library Building would be the better for all purposes. It was moved by Mr. Green, seconded by Mr. Baikie, that we hold our convention and Exhibition in the Public Library Building, which was carried.

It was moved by Mr. Baikie, seconded by Mr. Green, that the collecting of annual membership fees be left over till programmes, etc., are issued, as well as a form to be used by travelers to assist in securing a big membership this year. Carried.

The Secretary moved, seconded by President Hopkins, that we prepare a circular for distribution as early as possible. Carried.

Moved by Mr. Baikie, seconded by Mr. Burke, that we make a small charge and admit the public to the Exhibition. Carried.

The different classes for exhibition to be as follows:

Grand Prize.—A collection of twelve portraits, 8 x 10 and 11 x 14; Ross lens. Value, $75.

Class A.—To consist of exhibit of portraits of which twelve must be 8 x 10 or larger. Not less than twenty-five (25) pictures.

Class B.—Twenty-five (25) or more portraits of which twelve (12) must be 11 x 14, not larger, for towns of 4,000 to 8,000.

Class C.—Twenty-five (25) or more pictures from cabinets to 8 x 10, not larger, for towns of 4,000 or less.

Class D.—Twelve (12) 6½ x 8½ or larger views.

Class E.—Twelve (12) pictures, any size, of interiors.

Class F.—Employés' prizes, retouching exhibit, six (6) negatives; prints before and after retouching to accompany them.

Class G.—Employés' prizes, printing one dozen (12) gloss prints vignette, one dozen (12) matt surface.

Moved by Secretary Westlake, seconded by Mr. Green, that some of the special prizes contributed by citizens of London be given for a competition between operators under a skylight. Carried.

There being no further business which could be definitely dealt with, the Committee adjourned, to meet at the call of the President and Secretary.

The list of prizes being yet incomplete, they were not assigned to the different classes.

F. J. Westlake,
Secretary P. A. of C.

* * *

All copy for the April issue should be in our hands on or before March 15th.

A POSITIVE PROCESS FOR THE REDUCTION AND INTENSIFICATION OF NEGATIVES.

TAKE an under-exposed negative, and flow it with any positive printing solution that will make a good transparency. Then print very lightly in the ordinary way, and fix without toning. The depth of printing will depend on the amount of reduction desired. Very little is necessary. With this method the reduction can be carried to any extent desired, so that a good print can be obtained from a negative that is ordinarily considered useless on account of the transparency of the shadows.

Although I have not tried it, I do not see why the opposite process cannot be used for intensification; that is, to print a negative on a negative. This can be done by making a printing solution such as is used in the chloride of iron process, and flowing the negative with it. When a print is made by this process, a positive is made from the negative, and a print from that, so that if you should print from the negative you would get another negative, and in this manner intensify your negative. A description of this process may be found in "Photographic Printing Methods." W. F. COOPER.

UTILIZING PHOTOGRAPHIC WASTES.*

R. W. G.

THERE are many ways of using the various packing materials and photographic wastes (other than refiner's wastes) that amateurs may adopt. The sheets of tissue paper between pairs of dry plates, for instance, are useful for pasting on a glass side of the negative, on which one can work with crayon or pencil to lighten heavy shadows and generally improve the resulting print, block out a weak sky, etc.

Cardboard sheets between which bromide papers are packed, make good vignetters if serrated cleanly with a sharp knife.

For spoiled celluloid films there are a number of uses, such as the following:

(1) They make good pads to place behind silver and platinotype papers in the printing frame to keep moisture out, which is important in these processes.

(2) Suitably colored, they can be used as tinters in the optical lantern, or colored orange for lens caps in enlarging lanterns.

(3) When ground with emery, they answer for matting chloride prints on; also as substitute for focusing screen in camera.

(4) Also for glossing chloride prints on the smooth side.

(5) Painting on them for Christmas cards, etc.

(6) Thoroughly cleaned in soda and hot water and dried, they may be dissolved in 50 times their bulk of amyl acetate for negative varnish.

(7) If dissolved to saturation in amyl acetate, they make a coating for wooden dishes impervious to water.

(8) If interposed between the negative and printing paper in the printing-frame, they give a fine soft effect to the print which is much more pleasing than a biting definition for many artistic subjects.

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* *The Photographic News.*

(9) Photo-cyclists can cut a map up and mount each piece between two films with cement, thus forming a waterproof indestructible reference.

The cardboard cases films are sold in make most excellent receptacles for unmounted finished prints. If necessary, thumb-holes may be cut out of the open end, to facilitate the taking out of the prints.

Old pyro bottles are excellent for storing hypo in, which chemical comes much cheaper by buying a few pounds at a time, and storing until required. This is, perhaps, a better method of utilizing them photographically than that I read of some time back, viz., using them to raise hyacinths in.

TO REDUCE A NEGATIVE.

A NEW method of reduction for over-dense negatives, recommended by Mr. E. Gosselin, for which he claims uniform results and lasting qualities, is as follows : After soaking the negative for a half hour in water, it is transferred to a bath of—

Sulphuric acid	4 cubic centimeters.
Potassium bichromate (3 per cent. solution)	6 " "
Water	100 " "

As this bath acts quickly and with great energy, particularly when fresh, care must be observed in its use.

PHOTOGRAPHY AND MILITARY OPERATIONS.

IN a recent article commenting on the use of photography in connection with military operations in the field, *The Photographic News* refers to a meeting of German officers, before whom a lecture on this topic was delivered, in which the lecturer said some strong things in its favor, and goes on to say:

> The lecturer reminded his audience that it was utilized with good results during the sieges of Strasburg and Paris, a special photographic detachment having been formed for this purpose in the autumn of 1870. He suggested that each officer's patrol sent out for reconnoitering purposes should be provided with a hand camera, which might be carried without difficulty attached to the belt, or to the saddle. The exposed plates might be developed immediately on the return of the patrol, and within half an hour, copies would be ready for examination. Especially in conjunction with captive balloons, photography might render most valuable services, as recent experiments have shown. With a long-range lens, photographs could be taken from a balloon at distances up to twelve and a half miles. In a view taken at a distance of nine and a half miles or so, the windows and cornices of the houses could be clearly distinguished. In another instance, during some fortress manœuvres, a photograph taken from a captive balloon with a long-range lens revealed the existence of perfectly concealed batteries of the enemy nearly two miles off. The lecturer also alluded to the use made of photography in 1867, during the English expedition into Abyssinia, and more recently during the Chino-Japanese War, and added that Germany had allowed herself to be outstripped in this respect by other nations, especially France, Italy and Russia.

It would seem, in view of the many advantages we possess, and the enthusiasm existing among the photographic workers of this country, that a line of experimental work on the lines suggested in this article might be followed to good purpose.

PHOTOGRAPHIC FINDERS.

THE great popularity of the hand camera has resulted in the production of a considerable variety of devices for properly placing the image on the ground-glass. They have been adapted to every variety of condition, and some of them have even been provided with attachments for focusing the camera, while others ensure the camera being level during the taking of the picture.

One of the simplest finders is that illustrated in Fig. 1, which has neither lens nor mirror. The finder consists of a rectangular tube open at the ends and having a vertical and a horizontal cross wire in the front opening, and two oblique cross wires in the rear opening. The tube is secured to the camera box by means of two angular brackets whose arms are slotted. Bolts on the camera pass through the slots in the vertical arms of the brackets which are clamped by thumb nuts on the bolts. The horizontal arms are secured to lugs on the finder tube in a similar manner. In making a picture, a sight is taken through the tube, and the crossings of the wire are brought in line with the center of the subject. The slots in the bracket arms allow adjustment of the tube.

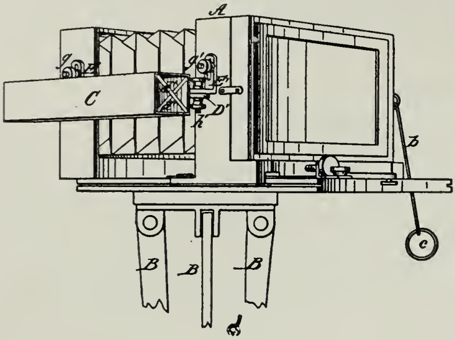


Fig. 1.

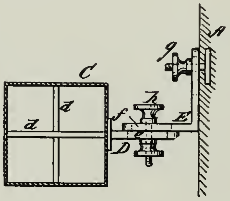


Fig. 1.

The form of finder having a lens in the front of the camera from which the light strikes an inclined mirror and is reflected to a ground-glass in the top of the camera is too well known to need illustration. A finder of this type, but which is provided both with a horizontal and a vertical ground-glass, is shown in Fig. 2. A rectangular, tubular body is provided with a horizontal ground-glass in its upper side, and a vertical ground-glass at the rear. A double convex lens is mounted in a metal tube at the front end of the finder body, the lens being held against a flange on the tube by a wire ring, sprung in place. A flange at the rear end of the tube acts as a diaphragm. In holding the camera waist high, the upper ground-glass is used, and the light is thrown against it by a mirror which is pivoted at its upper edge. But in work requiring the camera to be held so high that the upper glass would be

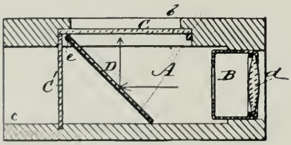


Fig. 2.

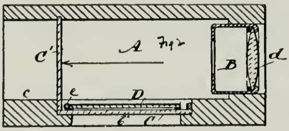


Fig. 2.

out of view, the camera is turned over, when the mirror falls horizontal and the light reaches the rear glass.

In Fig. 3 is shown a finder which can be made to present a view right side up, whether viewed from either side of the camera. The finder body consists of a removable box, held on the camera by an elastic band. In the front is a double concave or reducing lens, and inclined against the sides of the box are two mirrors, above each of which is an opening. A mirror is secured to a vertical shaft in the center of the box, and may be adjusted by a thumb piece on the top of the shaft to throw the light from the lens to either of the side mirrors, from which it will be reflected through the corresponding upper opening. The result is, that if the operator desires to stand to the right of the camera, by turning the central mirror he can obtain an upright image through the right-hand opening, and if he stands to the left, the same result may be had there.

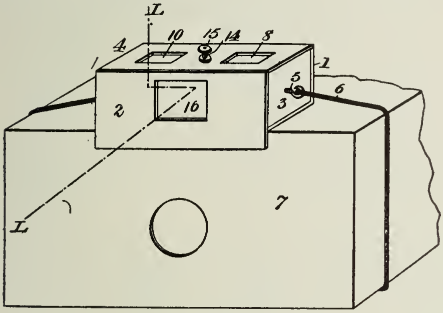


Fig. 3.

An interesting finder of the general type of those last described is shown in Fig. 4. A prism of glass, square in cross-section, is formed convex on its forward end, which constitutes in effect a plano convex lens integral with the prism. At the rear the prism is formed at an angle of 45 degrees, and is silvered to perform the function of the usual inclined mirror. In place of the ground-glass commonly used, the upper surface of the prism is ground. This finder is inserted in the camera box, so that only the lens and ground portions are exposed.

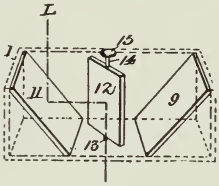


Fig. 3.

A finder which is also useful in focusing is illustrated in Fig. 5, a box having an opening in front and a ground-glass, visible through an opening, in the same plane as the film or dry plate. The camera lens is adjusted by a rack and pinion, and the finder lens is attached to an inner tube in the finder box, which tube is fastened to the rack through an opening in the two boxes. The finder lens is of exactly the same length of focus as the camera lens, and when the image on the finder ground-glass is in focus, the camera lens is also rightly placed.

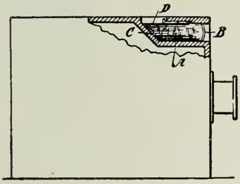


Fig. 4.

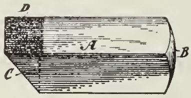


Fig. 4.

With the finder illustrated in Fig. 6, a brilliant image is thrown to the eyes when the camera is held against the chest or abdomen, and that without making it necessary that the line of sight be perpendicular to the camera box. A double concave lens is mounted in the front of the camera box, and back of this is a prism having its two sides and rear face vertical, and having its front and upper faces inclined. The rear face is silvered. The light passes through the lens, and is reflected from the rear to the front face, where it undergoes complete reflection to the upper surface, at which it is refracted obliquely rearward to the eyes. A black screen in the upper corner of the box prevents any reflection from the upper surface of the prism.

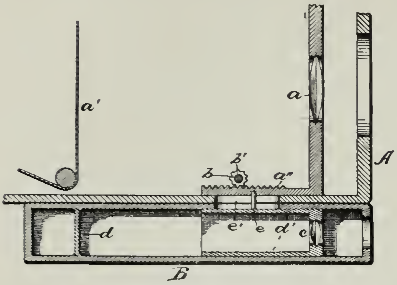


Fig. 5.

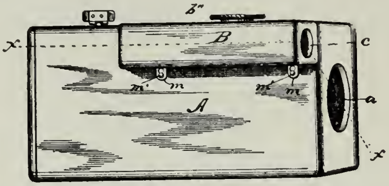


Fig. 5.

The finder shown in Fig. 7 is a combined finder and lock, its use as a lock being to prevent meddling with the camera during the owner's absence. Behind the front of the box is the front board of the camera. The finder has two ribs on its sides, which fit in grooves in the front board, so that the finder may have a limited, vertical movement. A spring under the finder, and which is supported by a bracket on the front board, tends to raise the finder. The top of the camera box slides in grooves in the sides of the box, and has a groove around the under side of the ground-glass opening, so that the finder can rise above the bottom of this board and prevent its being withdrawn. In putting the top in place, or in removing it, the finder must first be depressed, a feature not likely to be discovered by one not already informed.

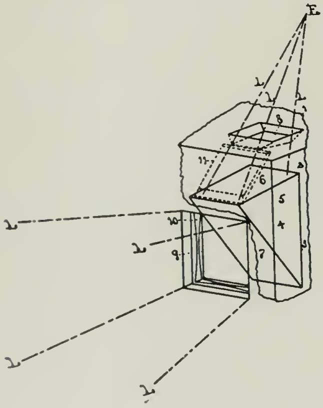


Fig. 6.

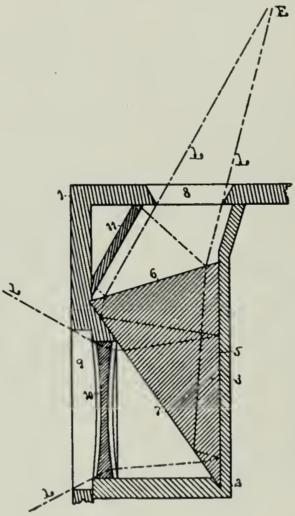


Fig. 6.

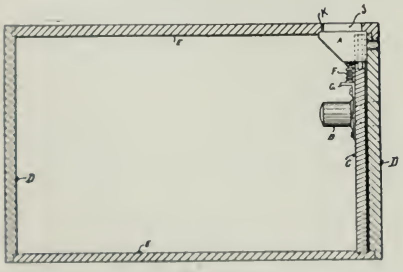


Fig. 7.

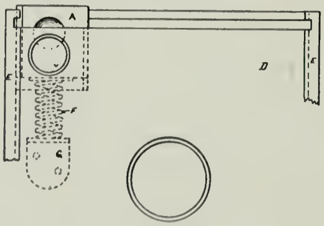


Fig. 7.

The finder illustrated in Fig. 8 also serves to level the camera. The finder consists of the usual double convex lens, an inclined mirror and a ground-glass of peculiar construction. In the place of the ordinary ground-glass is a level formed by two pieces of glass enclosing some liquid with a bubble between them. The under surface of the upper glass is ground and has two cross-lines cut in it. The image can be seen on the ground-glass, and the bubble can be seen beneath it ; and it is a comparatively simple matter to bring the centers of both in line with the intersection of the lines on the glass.

It is possible to focus a camera without the use either of a lens or a ground-glass. A construction for this purpose is shown in Fig. 9. On a post secured to the rear part of the camera box is pivoted a pair of arms, and two points are carried by blocks which slide on these arms. In rearward extensions of the arms are curved slots with which a pin on a lever engages, the lever being pivoted on the post. There is a cord connecting the lower end of the lever with the front part of the camera, and a spring tends to move the lever to close the arms. An arm running back from the post has an opening through which to sight. The arms are graduated, and the blocks carrying the points are first set on the arms at the mark against which the approximate height of the object is marked. Then, while looking through the opening, the camera front board is moved until, through the string and lever, the points on the arms are in line with the highest and lowest points of the figure to be focused. When these conditions are fulfilled, the image in the camera is focused. The device has, of course, to be adjusted to the lens in the camera the first time it is used.

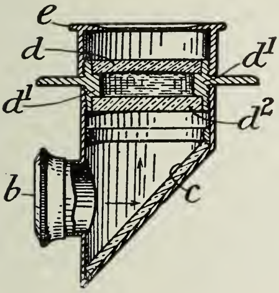


Fig. 8.

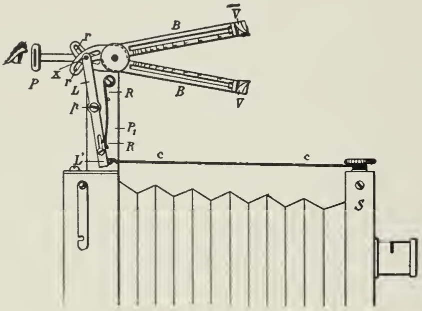
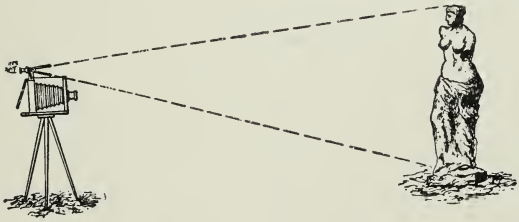


Fig. 9.

E. J. Prindle.



THE SUCCESSFUL INTENSIFICATION OF GELATINE NEGATIVES.*

SOME months ago an article appeared in these pages on "Irregularities in Intensification," and an opinion was expressed therein that the after-strengthening of gelatine negatives was less resorted to now than formerly. This is probably so, but I must confess to a belief that, if intensification could be reduced to a reliable and expeditious process, many negatives, even in the present day, would receive just that slight additional density requisite for the production of a brilliant print, which, rather than subject a valuable and almost perfect negative to the uncertainties of intensification, they are now deprived of. That these uncertainties and irregularities may be reduced to a minimum, indeed entirely eliminated from the process, by the exercise of ordinary care and intelligence, I feel convinced, and it is to supplement the excellent advice given in the article referred to that some points in my own practice contributing very materially to successful intensification are here emphasized. With regard to the permanence of an intensified negative, it may be stated at the outset that such negatives, in my hands, are equally permanent with negatives whose density was obtained in the process of development. Negatives intensified five or six years ago, and from which large numbers of prints have been obtained, are still as fresh as when first treated, and I would not hesitate on the score of permanence, to subject the most valuable negative to the process of intensification.

The need for thorough fixation, alluded to by the writer of the article already mentioned, cannot be too frequently iterated, seeing how few photographers realize the supreme importance of this phase in the evolution of a negative. It is a matter for exclamation that photographers who exercise the most fastidious care in compounding and applying the developer, yet perform the operations of fixing and intensification in a perfunctory and unintelligent manner. No negative that has remained in the fixing bath only until such time as the visible unaltered silver salts are just cleared from the film, is either permanent or in a fit state for intensification, and those photographers who desire successfully to practice intensification should make fixation thorough by the use of a second fixing bath, discarding the first when it begins to show signs of saturation. In all cases it is my practice to immerse the negative, when washed, in the following acid bath, which minimizes any possibility of hyposulphite remaining:

Chrome alum....	5 grams.
Hydrochloric acid...........................	20 cubic centimeters.
Water	500 " "

After a short washing the negative may be regarded as perfectly safe for intensification.

While much has been written in disparagement of mercurial intensification, it probably still remains the most popular of the many methods of intensification, and for permanence of result, when all operations have been carefully carried out, it has no superior. Previous to writing these lines commending mercurial intensification, some dozens of negatives thus intensified during the last six years, and which have spent a large proportion of that time in the printing frames exposed to spring and summer light, were critically reviewed for traces of deterioration, and in only one case was fading discernible, this instance being a well-remembered one where intensification was hurriedly performed away from home with a limited supply of water, and, after bleaching, merely blackened with sodium carbonate. All the rest were in perfect condition. It may be laid down as an axiom that under-exposed negatives are useless for mercurial intensification; their salvation lies in uranium, an intensifier simply invaluable in its place. The negative most suitable for mercury is one fully, or, indeed, rather over-exposed. The quality of prints from such negatives when intensified cannot easily be surpassed, and the range of gradation is excellent.

Passing, now, to the details of my own method of procedure and formulas, I may state that they have been chosen, after several years' careful experiment and observation, as giving the most uniform and reliable results. The preliminary bleaching was a simple matter, and did not admit of much variation; a plain 1 : 20 solution of mercuric chloride in distilled water, without any foreign additions, is thoroughly efficient. It was the reducing agent that caused so much consideration, and after trying carefully, and for protracted periods, simply blackening agents, such as ammonium hydrate, carbonates and sulphites, the conviction came that to be complete and reliable the bleaching should be followed by redevelopment; *i. e.*, if absolute permanence is desired. No length of immersion in hyposulphite will reduce a negative thus intensified, which fact has always appeared to me a testimony to its permanence. If the negative should be over-intensified, the only means of reducing it is by the application of a weak solution of Howard Farmer's reducer. The amount of bleaching I proportion to the degree of intensity required. It is usually stated that the bleaching should be thorough, and carried right through the film; this I have never found necessary, except where the maximum density was required. Negatives which want a very slight increment of density receive only a momentary application of the bleaching solution, and seem equally permanent with those completely whitened. The washing, after bleaching, must be thorough; the success of the operation depends on it. Merely soaking for an hour or two in standing water is the way to court stains and disaster when redevelopment takes place. If the bleached negative cannot be washed in running water, at least the water should be frequently changed, and at each change the surface of the negative rubbed with a tuft of cotton-wool. After an hour's washing under running water, the bleached negatives are placed in a bath of sodium chloride (1 : 10) for several minutes, and it was the introduction of this bath that made mercurial intensification, in my hands, a reliable process. A fair amount of washing, after the salt bath, leaves the negative in a fit state for redevelopment. This, after trying several agents, I effect with metol, as more certain in its action and less liable to produce iridescent stains. The formula used is as follows:

---

* From *British Journal of Photography.*

A.

Metol	3 grams.
Sodium sulphite	30 "
Potassium bromide	½ gram.
Water	300 cubic centimeters.

B.

Sodium carbonate	30 grams.
Water	300 cubic centimeters.

To make up the developer three parts of A are taken to one of B, and applied until the bleached image is thoroughly reduced, when a fine black will result, very different in appearance from the brown image left after blackening with carbonate of sodium. If the density should be considered excessive, it may be reduced, as stated above, by a weak solution of ferridcyanide and hypo; but with practice a discrimination in bleaching will be attained that renders unnecessary any such operation. Very slight washing suffices to remove the developer, but it is desirable to pass the negatives through a weak hydrochloric acid bath, as the carbonate of soda often precipitates the lime suspended in the water, and causes a white powdery film to appear on the negative when dry.

This is the outline of a process that has come to be regarded by me in the light of an old and tried friend. Very few photographers can say they have no negatives that would be the better for intensification, and, although the method of procedure here described may seem to entail tedious and complicated operations, when once intensification is carefully mastered, and no conscientious photographer can afford to ignore it, the operation is infinitely more simple and straightforward than development. In businesses where many hundreds of negatives are made annually, and under conditions constantly varying, there will be a large percentage of negatives to be either reduced or intensified to a standard printing density, and reliable methods become a necessity. A reliable method of reduction has long been with us, and that intensification has hitherto been looked at somewhat askance is due more to inability on the photographer's part than to any lack of formulas.

George T. Harris.

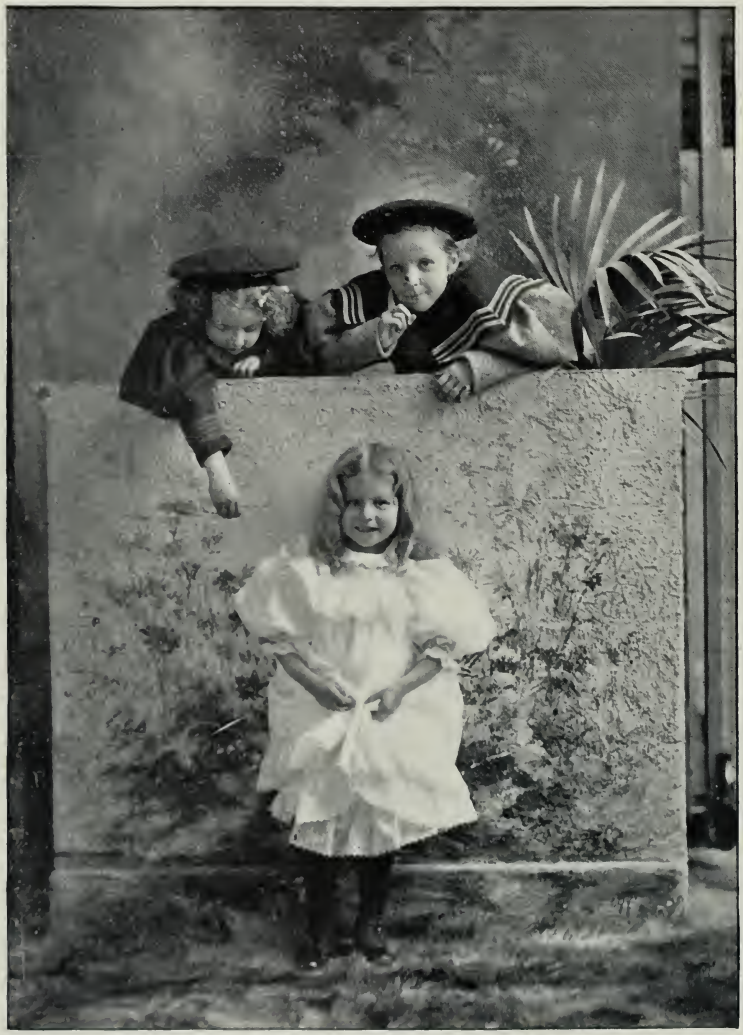


Photo from DANA'S Brooklyn Studio.

STUDY IN GROUPING.

Engraved with RICHARDS' Cross-Line Screen, 150 Lines.

SOME REMARKS ABOUT ALUMINIUM PLATES FOR COLLOTYPE PRINTING.

AT the Imperial Institute for Photography in Vienna, recent experiments have been made with aluminium plates for collotype printing. These tests gave many interesting results. It may be known that aluminium plates are destroyed by alkalis, and, as a consequence, to remove the gelatine film, they could not be cleaned in a lye, but only in a weak acid. This cleaning proceeds rapidly, and I used sulphuric acid, about 1 : 30. The printing is also much more agreeable than with glass plates, because with this metal the plate can be lifted easily in the printing frame for the purpose of examination. Further it should be said that the aluminium requires a different corrosion or moistening from the collotype on glass plates, the metal being attacked by ammonia. I composed this moistening solution of glycerine and water, leaving out all the other usual ingredients, which render the printing more difficult, as with a moistening solution containing such additions, the picture will become weaker with each print; so that, after a few prints, the plate will accept almost no ink.

It is known that in the collotype plate the details in the shadows will easily close up. In the aluminium plates (the changed moistening may be the cause) the prints are considerably handsomer and with greater depths, as shown by the results. It will also be more agreeable for the printer to print from aluminium plates, because the picture, in consequence of the grayish color of the metal, can more easily be observed.

It might further be mentioned that each glass collotype plate put into the press requires a number of trial prints. According to the quality of work, twenty or more prints are often necessary before a good print is obtained. With the aluminium plates there is an essential advantage in this direction, which may be ascribed to the changed moistening. No trial prints are necessary.

The fullness of tone and handsome depth is not the result of fine negative retouching, but depends solely upon the printing from aluminium plates.

AUG. ALBERT.

Translated by

HENRY DIETRICH.

NOTES ON CHEMICALS USED IN PROCESS WORK.

Mr. Penrose read an able paper on the above subject recently before the Royal Photographic Society of Great Britain, and from it we extract the following jottings :

* * *

Ammonium bichromate is liable to contain some free chromic acid. This is not only photographically very undesirable, but, further, it is an escharotic, and liable to aggravate bichromate poisoning.

* * *

Ammio sulpho hydrate ammonium and hydrogen sulphide, ammonium hydrosulphide, but more familiarly known as "stinko," is prepared by passing a stream of washed sulphureted hydrogen, H_2S, through a solution of ammonia and forming NH_4HS. If the solution is not sufficiently saturated with the H_2S it is likely not only to fail in its work of blackening the image in intensification, but is further very liable to produce serious stains.

* * *

Acetic acid is not unlikely to contain sulphates, or chlorides, or impurities. Their presence can be detected by diluting the acid with pure water and adding a solution of barium sulphate (for sulphates), or silver nitrate (for chlorides).

* * *

Ammonium iodide is a substance liable to vary very considerably. It easily parts with iodine, which shows as a yellow discoloration. This free iodine may be removed by washing with ether.

* * *

Ammonium hydrate—*liquor ammoniæ*—is not often of the reputed strength, .880. It is most liable to contain (among other impurities) some ammonium chloride. Its presence can be tested for by the above-mentioned nitrate of silver method, having, of course, previously neutralized the ammonia with nitric acid ; otherwise the silver chloride formed would be redissolved in the ammio solution. Ammonia solution in contact with the air is also liable to form ammonium carbonate. To test for this add lime water $Ca(HO)_2$ when calcium carbonate is precipitated.

* * *

Nitric acid—*aqua fortis*—is, again, another chemical of considerable importance to the process man. It is liable to contain sulphuric, sulphurous, and nitrous acids. Contact with zinc is sufficient to convert nitric to nitrous acid. The evolution of bubbles of gas is almost sure to cause irregularity of working in the etching bath. A trace, even, of sulphuric acid with zinc will cause evolution of hydrogen gas.

* * *

Silver Nitrate.—If it has any trace of an acid smell it should be exposed to a draught of air, and then stored in amber glass bottles.

Dragon's Blood.—This gum resin is of very variable quality, and should be thoroughly examined before any quantity is bought.

* * *

Filtering papers are also of variable quality, and should only be used when of the best. The Swedish are generally quite reliable. Those of Dutch origin are frequently far from satisfactory. When torn up and soaked in a solution of caustic potash (K H O), they should not show any color extract.

F. C. Lambert.

OUR ILLUSTRATIONS.

FOR our frontispiece and the exquisitely dainty little figure group on page 88 we are indebted to Dana's Brooklyn studio, which has always been known for work of a very high order of merit.

To Mr. Henry B. Vanderveer, whose name is familiar to all amateurs, is due the credit for the negative reproduced on page 75. "The Watering Place" is another happy composition in which Mr. Vanderveer's artistic taste and good judgment may be seen to excellent advantage.

These three plates are made with Richards' cross-line screen, and serve well to show its excellence for half-tone reproduction purposes.

Negative by Julius Rüger, Jr.

THE LINED-SCREEN DISTANCE IN THE PHOTO-REPRODUCTION PROCESSES.

Repeated attention has lately been called to the great importance of the correct lined-screen distance in the half-tone process; that is, the correct distance between screen and sensitized plate.

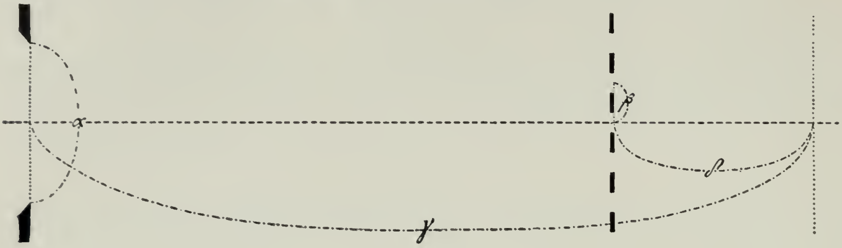


Fig. 1.

The professional artist will, as the result of experience and tests, place his screen where he thinks it may give the best results. There, in many cases, the screen will remain stationary and be used for all pictures of various distances without difference. Nevertheless, the working with a stationary but somewhat distant screen may be considered a great advantage in comparison to the old method of the screen being close to the negative.

We have learned, however, at the present time, that a stationary screen of average (universal) distance (whereby, of course, the now generally introduced cross-screen is meant) will not longer meet the requirements of to-day. Scientific investigation has taken a hand in the matter, and the exact laws governing the process have been determined and these questions have now been finally settled.

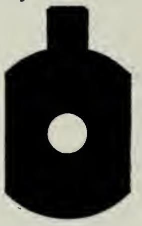


Fig. 2.

From these researches* which have advanced the projection theory of the screen considerably, strictly practical rules can also be gained, so that the operator, who is not so well versed in scientific discipline, is just as well enabled to make his screen-picture by correctly observing the conditions required by theory.

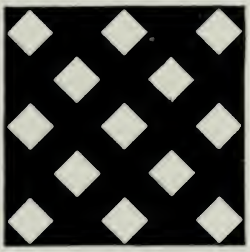


Fig. 3.

The object of this article is to support the practical requirements in this direction.

In each screen-picture there is quite a particular relation between four factors. These four factors are, as can be seen in Fig. 1:

(α) *The Diameter of the Diaphragm* (*Diaphragm-Normal*).—The size is variable. It is changed according to requirement by diaphragms of different sizes.

(β) *The Distance of the Screen Holes From Each Other* (*Screen-Normal*).—This size cannot be changed. It is given in the fineness of each screen used.

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*Eder, *Photographic Correspondence*, 1895, p. 16.
V. Turati, *Photogr. Mittheilungen*, 1896, Nos. 6, 6, 8.
Eder's *Year Book for 1896*, p. 310.
Photogr. Correspondence, 1895, p. 507.
Photogr. Mittheilungen, 1895, p. 177.

(γ) *The Distance of the Sensitive Plate from the Diaphragm.*—This is the length of the camera bed, which depends upon the desired reduction or enlargement of the original. Here, also, nothing can be changed. The factor is given by the required size of the reproduction.

(δ) *The Screen Distance.*—This can be changed by way of particular arrangements by means of a screw or a lever within certain boundaries. There are here, also, two changeable and two unchangeable factors to be considered, and as all factors are among themselves under one solid relationship, it is clear that for each camera length and for each screen-normal, respectively, one of the changeable factors has likewise to be changed according to rule.

A practical example will explain this: Suppose we have focused the original in the proper manner and to the required size. We measure the camera length from the sensitive plate to the diaphragm. This length is for example, 60 centimeters (γ).

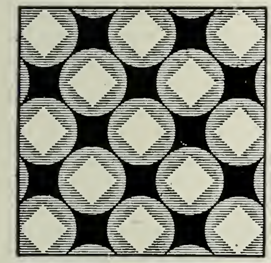

Fig. 4.

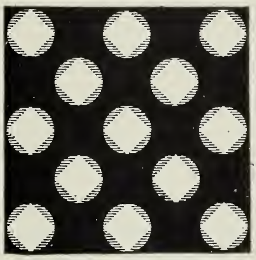

Fig. 5.

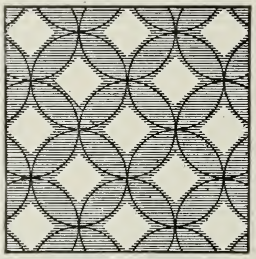

Fig. 6.

We take a diaphragm of 3 centimeters (α) diameter, and a screen of five lines per millimeter, that is, a screen-normal of 0.2 millimeter (β).

The proportion is then:

$$\alpha : \beta = \delta : \chi;$$

that is, with the sizes mentioned in millimeters,

$$30 : 0.2 = 600 : \chi,$$

whereby χ signifies the screen-distance (δ). It would be therefore

$$\delta = 4 \text{ millimeters.}$$

This is the mathematical part of the matter.

Tables have also been introduced to avoid calculation.

In these tables the most advantageous diaphragm, diameters and screen distances have been given each time, so that for each case one has only to refer to them for the desired information.

Far more convenient, and more satisfactory to the artist, is the determination of the desired dates experimentally by *focusing the screen.*

This method—which was first published by the writer—gives, aside from certain success to the operator, an exact idea of the method of taking the picture with the screen. It is not much more difficult than the ordinary focusing upon the ground-glass, and the operator will soon consider it as indispensable. After he has become used to the screen-focusing, he will gradually be enabled again to do without it. All he has to do is to turn the screw regulating the lever of his screen-holder to the correct position, the same way as an experienced operator will be able to judge the correct time of exposure without a watch.

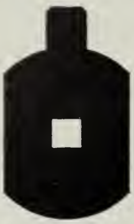
FIG. 7.

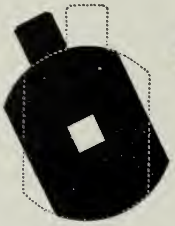
FIG. 8.

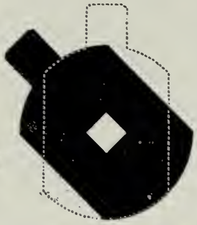
FIG. 9.

In the following practical description of the method it is understood as being well known that the screen view is taken with three diaphragms*: A very fine one—as fore-illumination upon white cardboard—for the shadows (about *f* 500); one a little larger for the half-tones (about *f* 50), and one still larger for the lights. The largest diameter of this last diaphragm (final diaphragm) is suitably *f*/20.† It is called the largest diameter, because its openings are generally not round, but square or cross-shaped. The reason of giving the preference to the latter shapes will be apparent in the further discourse.

We commence our experiment with a round diaphragm, *f*/20 (Fig. 2).

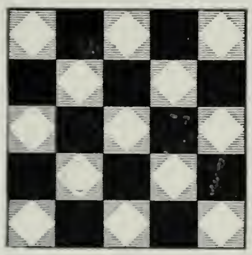
FIG. 10.

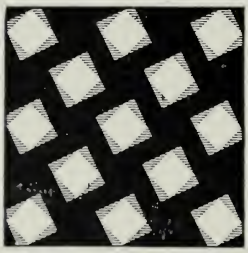
FIG. 11.

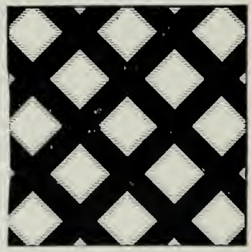
FIG. 12.

After everything has been prepared for taking the view (picture) the focus taken, etc., we put this diaphragm into the objective.

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* V. Turati, *Photo. Correspondence*, 1895, p. 507.

† The final diaphragm is selected (*f*/20) because the exposure would be too prolonged with a smaller diaphragm, and too small a latitude for the intermediate diaphragms would be left.

If no arrangement for the changing of the screen is handy, and in consequence thereof one is obliged to use the screen stationary at a medium distance, the diaphragm size has to be changed for the several bed lengths, and a size of the final diaphragm, determined in advance, will not be sufficient in such a case.

For practical purposes, one should calculate the three sizes as follows: Natural size, quarter reduction, half reduction; also the three suitable diaphragm-normals.

For this purpose, a is taken in the equation for χ; the latter is—

$$\lambda : \beta = \gamma : \delta,$$

that is, in the above mentioned proportions;

$$\chi : 0.2 = 600 : 4,$$

whereby χ signifies the diaphragm-normal (a). It would be therefore—

$$a = 30 \text{ millimeters}.$$

By the microscopic observation of the picture plane one should make sure if the calculated diaphragm (cross-shape 16) corresponds to the requirements of the picture, Fig. 19.

Close in front of the objective we place either a very bright lamp, or let the light fall into the apparatus in another way (by a mirror, etc.). Now we change the ground-glass for the open screen-holder, which, of course, must be arranged to focus the screen, admitting by means of screw or lever the forward and backward moving of the screen.

Now we take an ordinary well-cleaned plate glass, which fits into the holder. Upon this plate we scratch with a diamond a fine cross. The side with the cross is put into the holder in place of the sensitive film.

We need further a so-called focusing microscope (not focusing glass or lens). The microscope has three legs on which it is placed on the plate glass. By telescoping the tube, the cross can be focused sharply. When sharp, one will be in the position to observe all the proceedings in the plane of the sensitive plate.

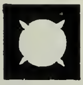
FIG. 13.

The observation commences by moving the screen as close as possible to the plate-glass and placing the microscope upon a lighted part of the plate. We now see distinctly the square form of the screen openings, light upon a dark ground in the visual field of the microscope (Fig. 3).

If the screen is now gradually further removed, the outlines of the light squares will gradually become unsharp, round and indistinct, until finally they touch each other as bright circular surfaces (projections of the round diaphragm), leaving dark four-pointed dots between them. The form of these dots and the round projections are illustrated in Fig. 4.

The position of the screen when the picture just described (Fig. 4) is visible signifies for our purpose the correct screen distance. If the distance is reduced, the bright projections will not touch each other (Fig. 5); the so-called point will, therefore, be wanting in the negative. Such lights will have a hatched and gray appearance. If, on the contrary, the distance is increased, the small four-pointed dots will disappear (Fig. 6). The visual field will then appear uniformly lighted, and the lights have in print a flat and chalky appearance.

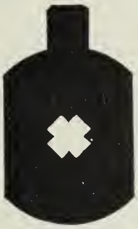
FIG. 14.

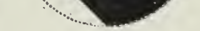
FIG. 15.

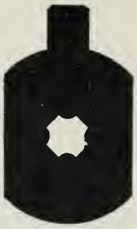
FIG. 16.

The experiment is now repeated with the square diaphragm (Fig. 7). In the visual field, with corresponding screen-distance, the picture will appear as in Fig. 10. Then it must be remembered that the diaphragm should always be placed as in Fig. 7. If this is omitted, and the diaphragm is put crooked into the objective—for instance, as in Figs. 8 or 9—delineations without joint, as in Figs. 11 or 12, will be the result.

The round diaphragm with diagonal points (Fig. 13) is a transitive form from the round to the cross-shaped diaphragm, and gives better results than the simple round diaphragm. By putting the cross-shaped diaphragm in an incorrect position (Fig. 15), no good point will be obtained, as shown by Fig. 18. In such a position unclean and lacerated lights are obtained in the reproduction. The correct position of the cross diaphragm (Fig. 14) shows an effect like Fig. 17. In this application of the cross diaphragm, as well as with the theoretically completely exact diaphragm (Fig. 16), exact small dots are obtained in the lights directly, which, with exact focusing of the screen, and suitable lighting conditions, require no chemical correction (intensification or iodo-cyanide treatment).

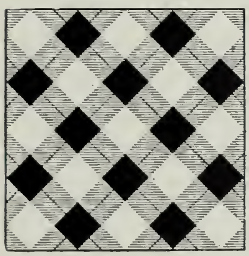

Fig. 17.

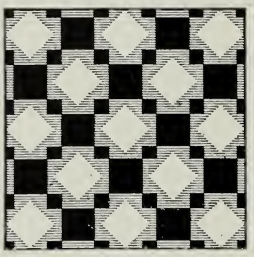

Fig. 18.

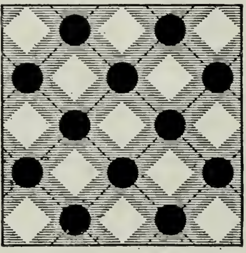

Fig. 19.

The last-mentioned diaphragms (Figs. 14 and 16) are, for practical purposes, to be considered as completely identical.

It is clear that the smaller and more exact these dots are obtained, so much handsomer and cleaner will be the lights. The half-tone photographer should endeavor to set aside all artificial chemical manipulations, and produce in a direct way a good reliable negative, requiring perhaps only intensification. That this is possible has been proven by the writer's own experience.

Count Vittorio Turati.

Translated by

Henry Dietrich.

The Bulletin again extends a cordial invitation to any and all of its friends and readers to send in from time to time contributions for the magazine which may have a special interest to the photographic fraternity, either amateur or professional, or examples of their work for review, or, where possible, and in line with the conduct of the magazine, for publication. It is the special aim of the Bulletin to deal with everyday facts and conditions as they confront the worker in the field, and it is only by the propounding of questions which arise in everyday work, and relating experiences that may come to the intelligent worker, that real benefit will be derived. We cannot, of course, promise in all cases to publish what is sent, both for lack of space and other reasons, but all communications shall receive prompt and courteous attention, and specimens, fair and honest criticism, if desired.

ASPHALT AND BICHROMATE, MIXED.*

WE daresay it has often been a dream in the mind of the budding young process worker that if only he could find some way of mixing asphalt and bichromate, and thus obtain the sensitiveness of the latter combined with the acid-resisting quality of the former, his fortune would be made. Perhaps he has gone so far as to try a little experiment, and in an obscure corner of his darkroom may possibly be found a little bottle of all that remains of his grand experiment, having put aside the solution in the hope that some day he might "do it." True, the result was not very promising, for either the bitumen did not dissolve in the stuff that would dissolve bichromate, or the latter would not dissolve in the stuff that dissolved the bitumen. Either one or the other was a granular sediment which it seemed hopeless to spread on a plate. Now, although it seems such an absurd thing to try, there is really the germ of a good idea in the combination of asphalt and bichromate. It may seem a queer chemical mixture, but there are paradoxes in chemistry as in all other things, and, strange as it may be, it is a fact that in the early days of process work there were several methods published of combining asphaltum and bichromate for the purposes of photo-lithography. Perhaps one of the earliest was a transfer method of Mr. Joseph Lewis, a well-known old photo-lithographer, still living in Dublin, who may probably on seeing this be induced to give present-day workers the benefit of his experience on the subject. Mr. Lewis, describing his process in one of the photographic journals many years ago, says he prepares the sensitive mixture by taking 1 ounce of black asphaltum, ¼ of an ounce of suet, as much bicarbonate of soda as will lie on a shilling, and melting them together in a pot, then adding as much of finely powdered bichromate of soda, and a little fine black to color. The mixture readily dissolves in turpentine, and in that state is brushed over a smooth card or paper surface. It is exposed to light for some hours under a transparent positive or print. It is then exposed to the vapor of turpentine for a few seconds, or a clean stone may be coated with a film of turpentine. The exposed surface is then laid rapidly down on the stone and passed through the press as in ordinary transferring; when, if the exposure has been properly timed, a perfectly sharp transfer will be found on the stone in what is practically transfer ink. Another method was described of using this sensitive varnish on stone, for direct printing.

A clean stone was coated with a very dilute solution of isinglass, and then coated with the mixture above described. When the film is hard, it is exposed under a negative. The development is effected by gently rubbing over the surface of the stone with a mixture consisting of 4 ounces of turpentine, a few drops of nut oil and of bisulphide of carbon, well shaken up with an equal volume of thin gum water. The mixture is applied with a sponge, and printing ink is added from time to time to charge up the work. The principles of this method were described as follows: (1) The preliminary coating of the stone with a neutral substance which prevents the sensitive and fatty ingredients from penetrating the stone until they are changed by light; (2) the action of alkaline bichromate under the influence of air and light in oxidizing resin and fat, thereby saponifying them and enabling them to penetrate the neutral coating of the stone (ordinary printing ink cannot penetrate a film of gum or isinglass, but if soap or alkali be present it does so readily); (3) by charging up the image with a mixture of gum, oil and turpentine, a film of grease is deposited on the image. A similar process described about the same time is stated to have been invented by a Mr. Gibbons, of Glasgow, in which the principal sensitive agent was Brunswick black, but the sensitiveness of which was increased by the addition of bichromate of potash. The solution was compounded as follows:

Copal varnish	3 parts.
Raw linseed oil	1 part.
Bichromate of potash	5 parts.

These being ground together in a mortar very finely and put into a bottle. Then were added Brunswick black, 2 parts; mastic varnish, 1 part; turpentine, 2 parts;

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* *Process Work.*

the whole being well mixed together. The coating was applied to the stone by means of a roller, and when dry the stone was exposed under the negative for one to five hours according to the strength of the light.

After exposure the coated surface is gently rubbed with a tuft of cotton wool soaked in linseed oil, which removes the parts unaltered by light. The oil is cleaned off the stone, and the image etched with gum and nitric acid. The same ingredients without the bichromate were stated to print much slower. Another writer about the same time found that the addition of a saponaceous body to asphaltum increased its sensitiveness more than the addition of a fatty body, and that with a mixture of soft soap and Brunswick black, he obtained half-tone carbon prints with such short exposures as three minutes. Such prints could be used as transfers to stone or zinc. It may be remembered, too, that Pouncey's process patented about 1863, consisted in preparing a tissue made by coating tracing paper with a mixture of printing ink, asphaltum, benzole and fatty matter, with or without bichromate of potash. The paper was exposed to light with the film side next the negative, developed in turpentine, dried, and transferred to a damp, cold stone. It will be seen that there is something after all in this idea of combining bitumen and bichromate, and it might be worth the while of present-day experimenters to try again some of these old processes with such modifications as may suggest themselves. It is probable that a much-desired process for zinc, which would be equivalent in value to the enamel process on copper, without the necessity of heating the zinc so strongly, could be worked out on these lines.

Now that three-color work is making headway, it is a good time to keep this process out of the system of charging by the inch, though we fear that those firms already in the business are tending that way. It is not too late to alter this, and it will be a wise step to do so, if this process is to be saved from the fate which has befallen line and half-tone zinco work. Color work ought to be estimated by the job, and not by the square inch. As a correspondent very well points out, a customer who wants a fine art book plate should certainly be content to pay more than a customer who wants a beer-bottle label.—*Process Work and the Printer.*

A JAPANESE scientist has discovered that fireflies emit rays which have the same properties as X rays. Professor Vivian Lewes has also found that glow-worms, fireflies, and luminous beetles, at an expenditure of 1 per cent. of heat, give 99 per cent. of light. When he also tells us that an electric arc lamp expends 90 per cent. of heat, in order to get 10 per cent. of light, it would appear that the firefly can teach us something.—*Process Work and the Printer.*

A VALUABLE hint to process operators working under powerful arc lights comes to us from Prof. Lewes, who states that the eyesight of workmen in electric light plants is liable to suffer unless great care is taken, and symptoms somewhat resembling sunstroke sometimes follow.

CHEAP HALF-TONES A DELUSION.

CHEAP prices are a delusion and a snare ; but people will chase after them as they would after a will-o'-the-wisp.

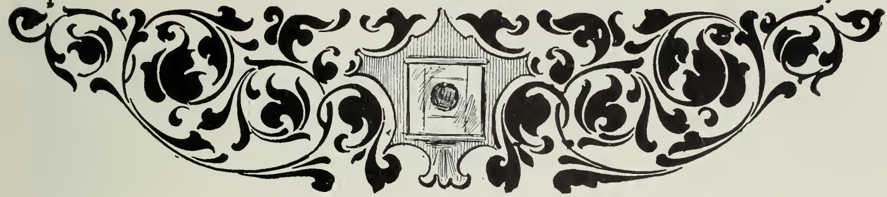
A cheap price will buy a cheap half-tone ; a good price enables the engraver to make a good cut, and make it as he should make it.

We cannot blame the engraver for slighting the work, and making a poor half-tone, when he has to make it for 15 cents an inch.

A first-class half-tone cannot be made for this price.

People who use half-tones do not know enough about them. They should know how half-tones are made.—*Trade Press.*

SOCIETIES



THE programme of work issued by the Richmond Camera Club, of Richmond, Ind., for the year 1897, shows that the Club is wide awake, and following a very profitable line of study. A meeting of some kind is announced for every month in the year, and most of them given over to exhibition, followed by a discussion, and on each evening of exhibitions some particular topic forms the basis of all the illustrative work. An outing is announced for July; annual excursion for August, and a lantern-slide exhibition for the month of December. The regular meetings of the Club are held on the third Wednesday of each month, excepting July and August.

We are informed by the management of the forthcoming International Photographic Exhibition, in Paris, that, owing to the bad weather and various other conditions, it has been decided to postpone the date of closing until November, 1897, thus giving amateurs wishing to take part a longer time in which to prepare their work.

Department of Photography, Brooklyn Institute.—The Society's meetings during the season have been very encouraging, those members who are interested in lantern-slide work showing considerable improvement over previous seasons, and the "lantern-slide nights" have been very interesting. The Department has organized a retouching class under a competent teacher, and much progress has been made by those who have taken up that branch.

At the regular monthly meeting, held January 21st, Mr. Dwight L. Elmendorf gave a lecture before the Society on "The Windward and Leeward Isles," and at the close of the lecture exhibited some remarkably fine work done with the telephoto lens.

Mr. Frank A. Perrett, a member of the Department, gave a demonstration of X-ray photography on the evening of February 12th, at which time a number of plates were exposed and developed, the feature of the evening being the development of a plate during its exposure to the rays through a case of drawing instruments. This latter proved very successful, and the lecturer stated his belief that this was the first time the experiment had been exhibited in public.

Henry L. Underhill.

Mr. Phil Maunder, of San Francisco, writes: "I could no more get along without the Bulletin than I could without my cameras. They and the Bulletin are my constant companions in my spare time.

"Believe me a constant subscriber and well wisher."

"I have just purchased a copy of the 'International Annual' and believe it is ahead of any yet. It is simply perfection. I could not get along without it; get one every year.

"Yours very respectfully, D. S. Corngill."

School of Practical Process Engraving

OUR REVIEWER

Photographic Progress, published by the Badgley & Hoerter Co., Louisville, Ky., under date of January, 1897, comes to us as one of the gems of photographic trade publications, containing a vast variety of goods illustrated by half-tone and other cuts, and exhibits a quality of editorial and press work which trade catalogues may be proud to copy.

We extend our congratulations to the publishers for the attractive and valuable make-up of this book.

A SPECIMEN of three-color printing from collotype plates comes to us from the Heliotype Printing Co. of Boston, and exhibits a remarkable range of color, combined with soft and delicate tones and shades. The registering in this specimen is almost absolutely perfect, and if editions can be run with as close a register and the same delicacy of coloring and detail, a large demand for this work in the higher lines of illustrating must be the result.

A PHOTOGRAPH by Mr. H. Erichsen, of Detroit, is before us, showing a long line of wild country road vanishing in the extreme distance, which is handled in a very artistic and finished style. The low tone of color in the atmosphere indicates a gray autumn day and adds to the loneliness of the composition.

THREE photographs by W. H. Ingram, of Philadelphia, have reached us, one or more of which we shall endeavor to publish in the near future; one, a group of cattle at a ford, and another, the head of a horse, are particularly worthy of mention.

WE would call the attention of our Spanish friends to *La Revista Cientifica Hispano-Americana*, a photographic monthly published by E. & H. T. Anthony & Company. Valuable matter on photography and photo-engraving appears therein, and every issue is copiously illustrated.

OUR friends are cordially invited to send in specimens of their work, either for publication or for review. Photographs, designs, half-tones and any matters of general interest are welcome.

THE advertising columns of the BULLETIN may be used without charge by those desiring to obtain employment.

ADVANCED sheets of a *Catalogue of Supplies for Photo-Engraving and All Photo-Mechanical Processes*, shortly to be published by E. & H. T. Anthony & Co., have been received, and from these we are able to announce a very complete and attractive catalogue, which will be invaluable to all process workers. The catalogue is very exhaustive, containing descriptions and cuts of all the more prominent accessories needed in process work, and has three full-page illustrations from half-tone plates made with the Richards' cross-line screen, which come in as a practical exemplification of the printing qualities of these screens. The catalogue will be ready in a very short time, and will be sent on application.

ANNUAL OF ANTHONY'S PHOTOGRAPHIC BULLETIN, 1897.—This annual contains a well-selected diversity of matter, high-class illustrations on almost every second page, bold type and good paper. The London agents are Percy Lund, Humphries & Co., Amen Corner, E. C.—*Optical Magic Lantern Journal*, January, 1897.

WE note with interest, and welcome to the field of photographic publications, a new comer under the title of *Photographic Life*, a weekly publication edited by Walter D. Welford, of London, England, Volume I, No. 1, bearing date February 3, 1897. The first issue is bright and newsy, has several half-tone illustrations, and touches on some points that its contemporaries have not covered.

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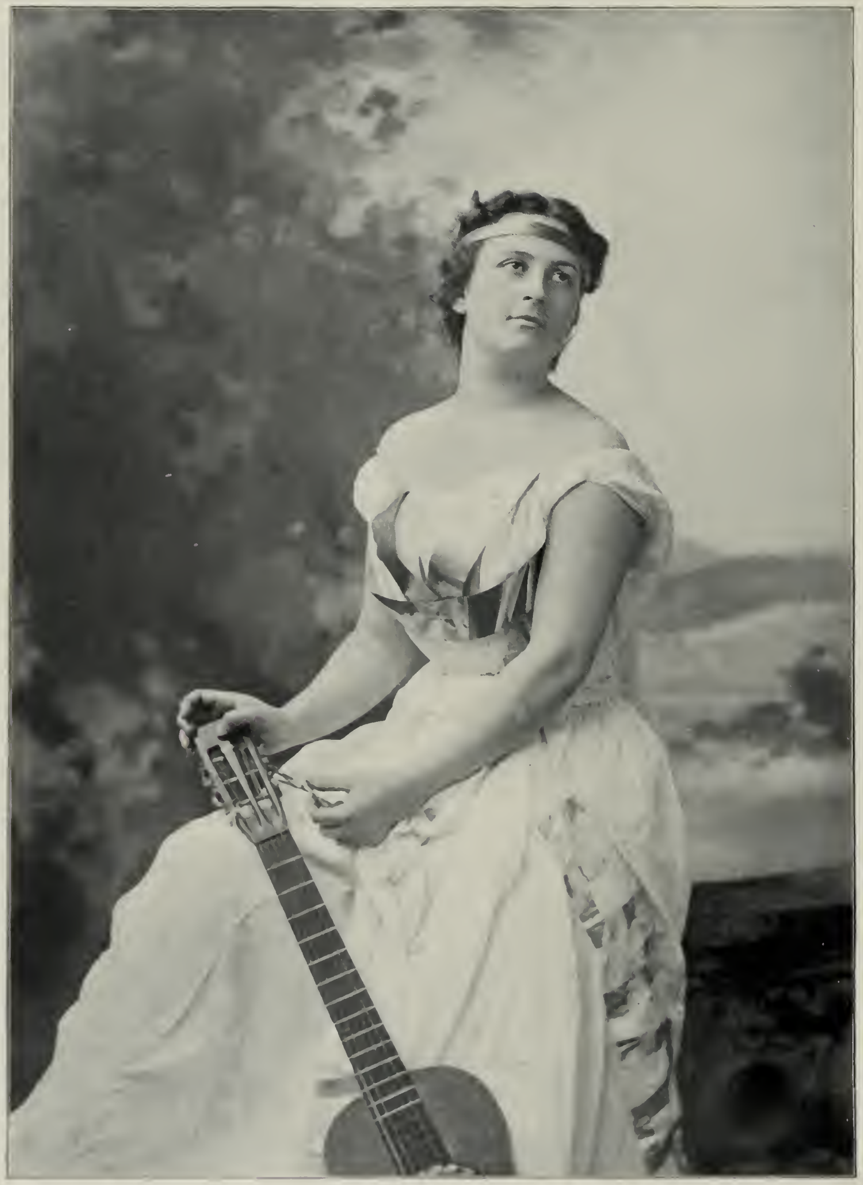

PHOTO BY FREDERICKS.

REVERIES.

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ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.

W. I. SCANDLIN.

VOL. XXVIII. APRIL, 1897. No. 4.

THE WRITING ON THE WALL.

THAT the pictorial instinct is a dominant characteristic of the human race is evinced, not only by the existence of our own profession, and the familiar experiences of daily life, but by all the records of humanity from the earliest story of mankind.

The history of the world is written largely in illustration, and much that we know of the earlier races comes to us with a clearer conception and more vivid reality perhaps, by their primitive drawings and decorations, than from their written documents—from the hieroglyphics of ancient Egypt on her papyrus roll, pyramids and sarcophagi, to the North American Indian with his painted and embroidered skin garments, weapons and wigwam, we have an evidence of the love of illustration and its absolute necessity as a means of communicating ideas. As time goes on and civilization advances, we find that this same love of the pictorial, which formed so striking a characteristic of the ages long gone by, remains with us, and is daily and hourly being utilized for our pleasure and improvement. We write our history almost as much with the artist's pencil, as with the historian's pen, our family records are made eloquent to posterity by the photographer's skillful manipulation, and the beauties of Nature and of art are perpetuated by the happy combination of both, in forms less durable, but more abundant than was the case when each rude carving was the work of patient, long-continued toil. The most cursory glance over the literature of the day will show what rapid strides have been made in our printing and process methods of illustration in the last few years, whereby process plates have made possible the most prolific illustrating, and

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are utilized so broadly in all fields of work, and now, as a climax to it all, we have that new and delightful means of showing, pictorially, life-size scenes from our every-day life with all the advantages of animate action, to make them real and attractive. It is, we believe, safe to predict that in the near future the modern projecting lantern, which has now reached such a state of perfection, will in some form or other come to be a belonging of each photographic household, and we may look to finding in our future modern homes, adequate preparations and facilities for its use. The proposition has already been seriously made, to incorporate one of these instruments, together with sets of films, into a collection of valuables to be deposited under the corner-stone of a prominent building, as being the best practical means of exhibiting to future generations the manners of the present. The field for the usefulness of this wonderful invention is almost limitless, and, like all other real and tangible improvements, the projecting lantern has come to stay.

RECORD RESULTS OF EXPERIMENTS.

NO doubt much has been lost to science by the failure on the part of experimenters to record with accuracy the results of their work and the varying conditions under which it has been performed.

This record of experimental work is of great importance, whether the result has been wholly satisfactory or not, inasmuch as time, material and temper are frequently wasted in going over ground already covered, but perhaps forgotten in detail, which would not be likely to occur if a systematic record were made of each new trial.

TO COLOR WET PLATE LANTERN SLIDES.

MR. D. L. ELMENDORF, whose very comprehensive work on lantern slides has made such a place for itself in photographic literature, in answering a query as to the proper treatment of wet-plate slides for coloring with his lantern-slide colors, gives the following advice: "Take 40 grains of hard gelatine and soak in cold water until perfectly soft; then pour off all the water possible; add 2 fluid ounces of water to the gelatine, and place the vessel containing the gelatine and water in a saucepan full of water on the stove, bringing it to boiling point; then strain the dissolved gelatine through a cloth and flow over the wet-plate slide while hot; then place the slide on a level table to set and dry. Care should be exercised that no dust be allowed to get at the plates. This coating of gelatine on the surface of the wet plate will, when dry, form an excellent basis for coloring, and can be handled in all respects the same as a dry plate. It is best to have the plate full of gelatine solution, because when dry the film will be quite thin."

All copy for May issue must be in our hands by or before April 15th.

Items of Interest

THE sympathy of the American photographic fraternity should go out to their English cousins when they note that, according to the report of the Greenwich Observatory for the three last months of 1896, they were favored with only about one hundred and twenty-two hours of bright sunshine in the entire three months, this being only a little over 14 per cent. of the total number of hours that the sun is supposed to be above the horizon. This seems to be an usually large proportion of cloudy weather, even in view of the prevailing sentiment regarding London fogs

A NOTE in the *Amateur Photographer* of February 19th bears directly upon the question which appeared in these columns in last month's number, the writer giving his experience with the washing and fixing of negatives where the supply of fresh water was inadequate. His method is, after developing and fixing, to rinse the plates over with water from a jug and then to immerse them in a bath of dilute hydrochloric acid, composed of 1 dram of acid to 4 ounces of water, leaving them for a few moments and then giving a good rinsing. This treatment is claimed to be effective and to leave the plates in good printing condition.

MR. CROOKES, whose name has been so intimately associated with the subject of X rays, in his recent address to the Society of Psychical Research, of which he is president, is quoted as saying with reference to the X rays :

"We are introduced to an order of vibrations of extremest minuteness as compared with the most minute waves with which we had hitherto been acquainted." "It has been demonstrated," he continued, "that these X rays as generated in the vacuum tube, are not homogeneous, but consist of bundles of different wave-lengths analogous to what would be difference of color could we see them as light, some passing easily through flesh, but partially arrested by bone, while others pass with varying facility through bone, but less easily through flesh." He considered it possible that other X rays exist in which vibrations are of a more extreme minuteness, as there is no reason to suppose that we have reached, in the Röntgen rays, the limit of frequency, and that some of those unknown rays may supply the key to much that is now obscure in psychical phenomena, as in telepathy—the transmission of thought and images directly from one mind to another without the agency of the recognized organs of sense.

THE following formula from the Canadian *Photographic Journal* is said to give an excellent paper for the printing of plans and drawings in black lines on white. Such a paper will always find abundant fields of usefulness if it can be successfully manipulated.

A 10 per cent. solution of gelatine, to which add—

A.

Ferrous oxalate	10 grains.
Tartaric acid	19 "
Ferric chloride	.29 "
Distilled water	½ ounce.

Mix these two solutions while warm and at once coat the paper and dry it.

After printing, develop with—

Oxalic acid	1 grain.
Gallic acid	7 grains.
Water	2¼ ounces.

Carry development till the lines become black, and then wash well in running water.

* * *

It is said that a brown tint, somewhat like that shown in old engravings, may be imparted to photographic prints by soaking them in a bath of either tea or coffee. This bath should be of good strength, should be used cold, and must be filtered before use. A thorough rinsing of the prints should follow their immersion.

* * *

Don't forget that the forthcoming convention of the P. A. of A. is getting nearer very fast, and that the time is growing beautifully less in which exhibits may be completed. Arrangements are rapidly being perfected, and it is probable that in a very early issue of the Bulletin complete announcements will be made. Meantime, bear in mind that there will be lots of ladies present, and they like to meet their lady friends from all over the country.

* * *

Mr. John Carbutt gave a most interesting and instructive demonstration of the X rays before the Photographic Society of Philadelphia on the evening of March 10th, the subject being "Photographing the Unseen." He gave a general résumé of the progress of photographic science in general and of the Röntgen rays in particular, and exhibited the phenomena by means of his very complete apparatus. During the evening a radiograph of the hand of the President of the Society, Mr. Burroughs, was made, with an exposure of ninety seconds, and a very successful plate developed therefrom The demonstration was remarkable for its lucidity and the very comprehensive manner in which Mr. Carbutt handled the subject.

* * *

The formal opening to the public of Mr. J. C. Strauss' new studio, which occurred on March 4th, Inauguration Day, was preceded by an informal opening, which was attended by a large number of the prominent members of the profession from all parts of the country.

Their entertainment was lavish, and the consensus of opinion was that the new studio was one of the most perfect to be found in the country.

The building throughout is fitted with hand-carved oak casements, ceilings and stairways, and inlaid floors. The walls are decorated with silk and velvet tapestries. On the main floor is a public reception room, promenade, Turkish room and art gallery.

No expense has been spared to make the appointments as harmonious and perfect as possible.

◆

A NOVEL method for tinting bromides was recently suggested by Mr. W. H. White before one of the English clubs, which consisted in applying powdered crayon to the print with a camel's-hair brush and afterwards steaming the print, this latter operation having the effect of rendering tacky the gelatine, and thus causing the crayon to become incorporated into it.

◆

IT is claimed by M. Radignet, in a paper presented to the Academy of Sciences, that by the use of screens made from crystal glass enamel or porcelain, instead of the usual cardboard ones coated with fluorescent crystals, the images from the Röntgen rays are, though less brilliant, much more sharply defined.

◆

PRIZES amounting to 300,000 francs are offered by the Belgian Government, to be competed for by individuals of any nationality, at the exhibition to be held at Brussels this year, for the best solutions of certain astronomical problems, one of them, bearing interest to the photographic profession, being, to "Invent a means by which planetary details may be photographed as clearly as they can be observed." Another, which will be of interest to observers of eclipse photography, is, to "Find a method by which the sun can be observed at any time as if it were totally eclipsed."

◆

THE congress of learned societies to be held in Paris in April, under the auspices of the Minister of Public Instruction, extends an open invitation for communications from all qualified to speak, on a large number of topics in the direct line of photographic investigation. Among others are the photography of the invisible parts of the spectrum, the X rays, the action of different rays of the spectrum in photographic plates, photography in colors, photometry, the theory of lenses, suggestions for fine-grained sensitive surfaces, the chemical and physical phenomena of development, photo-astronomical and photo-meteorological work, etc., etc. From the discussion of such subjects as these, on the broad lines to be anticipated from the invitations, much of interest and value should result.

THE URANIUM RAYS.

By Dr. A. Miethe.

PROFESSOR ROENTGEN'S discovery has developed a feverish tendency in the search for new rays which are capable of penetrating opaque bodies and exercising a photographic action. All these researches, particularly the discoveries of Le Bon, lack confirmation regarding their constancy. But a very remarkable discovery has now been fully determined, namely, that of Becquerel. By accident he found that the sulphite double salt of uranyl and potassium is capable of emitting rays, which, passing through opaque bodies, will act upon photographic preparations. Le Bon placed a piece of sulphate of potassium and uranium upon a bromide of silver plate, which was covered with an aluminium plate. After several hours a light spot was visible upon the developed plate at the exact spot where the uranium salt had lain. Placing a perforated copper stencil plate underneath the aluminium plate, the perforations in the same would show their form upon the bromide plate. The rays emitted by the uranium penetrated, therefore, the aluminium, but not the copper. These tests were repeated by Elster and Geitel with the same results. These scientists also demonstrated that the uranium salt was equally effective, whether previously subjected to the influence of rays, or kept for three months in the dark. This appearance, designated as hyperphosphorescence, is the result of extremely slow action, or, as is very probably the case, action is not excited by the ordinary light rays, but by other forms of energy, which strike and excite the uranium salt in the dark as well as light.

I have successfully repeated Le Bon's experiments, and particularly with the metallic uranium silver. Unfortunately, only small quantities of this very expensive substance were at my disposal. I found, however, by these experiments that the uranium has the same properties as the sulphate uranium and potassium. If a plate is covered with a sheet of opaque mask paper in a printing frame, upon which a few pieces of uranium are laid, and the whole is left in an absolutely dark room from six to eight hours, even the smallest uranium particles will show upon the plate in the development as black dots. At a duration from three to four days, the reduction is extremely strong. After ten minutes, however, no action could be proven. The action, therefore, increases with the duration of exposure. Whether it is in proportion to time remains to be found out. Taken all in all, the uranium acts in metallic condition weaker than the sulphate of uranium and potassium.

I have also investigated to ascertain whether the action of the uranium might be due to an emission of gases or vapors, which, of course, appears to be excluded from Becquerel's tests by application of the aluminium plate, and found that by wrapping the uranium in a sheet of thin aluminium the action was not essentially different, nor would it change by inserting a gelatine sheet. If the uranium was soldered to the inside of a thin, completely air-tight vessel, an action was likewise observable after eight days through the metallic receptacle, which is evidently completely impenetrable by gases or vapors.

The rapidity of action was entirely independent of the previous action of light on the salts, that is, as to whether the uranium had been in the dark, or was exposed to the rays of a powerful incandescent lamp at short distance for ten minutes, shortly before making the experiment. Two equally large pieces of uranium, one put under the influence of rays in this manner, and the other kept in the dark, had equal effect. I have also investigated under equal conditions, with a large number of other bodies, to find their chemical action upon dry plates, without discovering even traces of a certain action.

Chlor salts of potassium, sodium, lithium, copper, zinc, iron, cyanide salts, were without effect, though slight effects were shown by chloride of magnesium and chloride of ammonia. This peculiar radiation of the uranium deserves, at all events, the attention of photographers, and an exact investigation of the conditions should be of the greatest interest. So much is certain that by a simple application of uranium salts or the metallic uranium, actions can be produced which in regard to behavior towards the photographic plate are of a precisely similar nature to the Röntgen rays.

Translated by

Henry Dietrich.

Photo by W. H. Ingram.

EVENING AT THE FORD.

PHOTOGRAPHY IN NATURAL COLORS—A COMPARATIVE SKETCH.*

By Rev. F. C. Lambert.

IT may be well at the outset to remind the readers of this note that the above title at present represents a hope, an ideal, a dream, rather than an accomplished fact —at least, so far as is known to the present writer. For, while we have several methods whereby it is possible to make photographs showing objects more or less agreeing with their natural colors, yet it still remains that those methods which produce the color as an inherent constituent of the result are by no means absolutely faithful in this respect, while the other methods, giving a closer approach to the question of color, do not really afford the color by photographic methods. These points will possibly be made more clear as we pass in review some of the more important results and methods whereby they are obtained.

The search for a means whereby the colors of natural objects could be reproduced began before the days of photography. As far back as 1801, Ritter noted that the different portions or colors of the spectrum produced different tints when allowed to fall on chloride of silver. The next year, 1802, Davey produced approximate copies of colored objects on paper coated with chloride of silver, but he was not able to fix these colors. In 1810 Seebeck continued investigations in the same direction and obtained a darkening effect beyond the ends of the visible spectrum, *i. e.*, in the infra-red and ultra-violet regions. These results were confirmed by Herschell in 1839. About this time Daguerre noticed indications of color on his plates.

About 1840 Hunt experimented in a similar manner with fluoride of silver, and subsequently with bromide of silver. But the difficulty still remained—how to fix these colored images, for the same daylight which produced the darkening up to a certain tint would continue its effect on further exposure.

In 1848 Becquerel took a silver plate and obtained a coating of silver chloride, either by placing it in chlorine water, or preferably by connecting it to an electric battery and immersing it in dilute hydrochloric acid, so that, the acid being decomposed, chloride of silver of great purity was formed. The plate now exposed in the camera or in a printing frame (under transparent colored objects) gave results which have been described by those who have seen them as remarkably faithful reproductions of the colors of Nature. By means which do not appear to be known, he succeeded further in more or less fixing some of his results.

From this time the number of experimenters in this direction become much more numerous, among them being such conspicuous names as Niepce, Poitevin, Dr. Florent, Fowler, Taylor, Warton-Simpson, Carey-Lea, Kopp, Abney, etc. They have used chloride, fluoride, bromide, iodide of silver, etc. The silver salt has been supported on glass, paper, metal, etc., in its pure state, also in combination with collodion, gelatine, or similar organic bodies, etc.

Still, the fact remains that these results are only approximations to the colors of natural objects, and there seems no known certain method of fixing these colors so that the finished results may fearlessly be exposed to ordinary bright daylight.

It may be noted that all these experimenters have the same idea more or less in common, viz., that of employing some one substance which will by a sort of sympathetic action absorb and retain any particular tint and hue which falls upon it.

The next set of investigators aimed to produce their effects by an entirely different method. They started with the Young-Helmholtz-Maxwell theory of vision. According to this theory, the nerves of the eye affording the sense of color are not all equally susceptible to the various colors of the spectrum. For example, some of the nerves respond to red or red-yellow or red-orange light; another set respond to the green region, while a third are only affected by the violet portion of the spectrum.

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* *The Amateur Photographer*, February 19, 1897.

Thus, as one or more sets of these nerves are stimulated—either single or in combination in various degrees and proportions—so arise the various sensations of color. If, then, we take a photograph through a transparent medium which permits only, let us say, those rays in the green region of the spectrum to pass, and use a plate specially sensitive to green or greenish light, we shall get a negative where the densest portions correspond to the brightest greens. If now we made a positive, we get the clear glass corresponding to the green of Nature. If this be viewed behind a green glass, we have a picture more or less true to Nature, so far as greens are concerned. Thus, by taking three such pictures corresponding respectively to the three color-sensitive nerves in the eye, viz., red, green and blue-violet, and view them simultaneously, we ought to get a representation of the colors of Nature, more or less. Thus argued Collen about thirty years ago. This method has been explored by various workers, the more notable names being Du Hauron, Vogel and Ives. The wonderful degree of illusion produced by the stereoscopic pictures of Ives as seen in his latest kromskop has to be seen to be at all realized.

In a similar way, three such photographs suitably backed up with their proper colored glasses, can be thrown upon the lantern screen and accurately superimposed with the result that remarkable fidelity to natural colors can be obtained. This, again, Ives has practically demonstrated with conspicuous success.

In a somewhat similar way are mechanically produced certain results roughly classed together under the collective term, " three color " prints. *i. e.*, prints made by three separate inks, such as red, yellow and blue, printed one upon the other according to accurate register. The reason that the colors of the inks are red, yellow, and blue, and not red, green, and blue-violet, will appear from the following consideration. If from a negative a collotype plate be made in the ordinary way, it is found that those parts which take the ink are the parts corresponding to the thin or thinner portions of the negative, *i. e.*, these correspond to the half-tones and shadows of Nature. If, then, we make a negative on a red-sensitive plate behind a red screen, the thin portions of the negative correspond to the rays which did not pass the screen. These colors will be about the blue region of the spectrum. If, then, a collotype plate be made from this red screen negative, the portions of it which take ink correspond, not to the reds of Nature, but to those colors which did not pass through the red screen. This plate must be therefore printed with a blue-green ink. Similarly the printing plate made from the green scree negative must be printed in red-orange ink ; while the plate from the blue-violet screen negative must be printed in a yellow ink. Obviously a large measure of the success of all these various three-color results depends on duly sensitized plates, correct proportionate exposures, and extremely careful adjustment of the colors of the screens, inks, etc., so that it is obvious that, while the results are interesting and in many ways admirable, yet they are not photographs in color in the ordinary sense of the term, but rather pictures in color, the drawing, etc., being done by photography, and the color subsequently added by human skill and adjustment, etc.

We now come to the third great division of the subject which, while it differs somewhat from both the other two, yet is more nearly related to the older methods with the silver plate coated with silver chloride. With this branch of investigation we may especially associate the names of Lippmann, Lumiere, and Valenta among numerous others. Briefly put, the method of working consists in the employment of a glass plate very thinly and evenly coated with a gelatine emulsion of silver bromide, the color sensitized with erythrosin and cyanin. These plates are exposed in the camera, the plate-holder being contrived so that the exposure takes place through the glass ; and in contact with the film is a layer of liquid mercury. This acts as a reflector, of course. Development takes place in the usual way with a carefully adjusted pyro ammonia developer, and fixation is done by potassium cyanide. The result, when viewed under proper conditions of light, shows some extremely interesting effects. But here again we get some curious, not to say startling, departures from Nature ; for example, in the colors of the sky, trees, etc. These results, it is extremely probable, are due to the well-known principle in optics known as interference. Briefly put, the matter stands somewhat thus. Suppose the waves of ether producing a certain color to impinge upon the first surface of a very thin transparent substance—say, the film of a soap bubble—part of this light is reflected, part goes on through the film, arrives at the back surface and is reflected. Now that reflected from the first surface has, so to speak, got a start of that reflected from the back surface. How much start, will depend upon the thickness of the film. If this corresponds to just half a wave length, then the two will "interfere" one with another so as to counteract each other and produce darkness, *i. e.*, black or absence of light ; but if more or less than half a wave length, then they produce a combined vibration different from that of the first impinging vibration. This actually happens in the soap bubble, and the change of lovely hues is simply due to the change of thickness of the film. This is brought about by various factors, evaporation playing an important part. Observations with the soap bubble show us always the same order of change of color, and it may be noted that when they get to the dark stage, the film is getting only half a wave length thick, and very soon will give way. There are many other natural objects whose colors are in this way due to interference phenomena, *e. g.*, plumage of birds, color inside many sea shells, *e. g.*, oyster, pearl, the play of color in opals, moonstone, etc. The same reason accounts for the rings of color seen in a printing frame of the box type, when a negative, not quite flat, is in close contact with the front sheet of glass of a different curvature of surface. Newton observed that when a convex flattish lens was pressed down on a flat piece of glass, he got rings of color. Hence the phenomena of interference are sometimes spoken of as "Newton's Rings," also referred to as the "color of the plates," and may be observed when tar in a thin film is floating on water, fracture of crystals, etc., etc.

At the same time, be it observed, that while no process produces the colors of Nature with absolute fidelity, nor do they produce photographs in colors, *i. e.*, in the ordinary sense of deposits of pigment, yet in all these several processes, it is photography pure and simple which makes the drawing. It would thus seem that the dream or ideal of photography in natural colors has not yet been realized.

MOONLIGHT EFFECTS.

"T. K.," writing on this subject in the *Photographic News*, advises those seeking to photograph with the effect of moonlight, to select a day on which the sun is obscured at intervals by masses of well-formed cumulous clouds. Then, if at the seashore and the subject duly selected, a moment is taken when the sun has become hidden and the water is alive with dancing ripples, and an instantaneous exposure is made, looking straight into the direction of the sun. Development must be for high lights, leaving the shadows to take care of themselves. He says : "The great secret in producing 'moonlight' views is to avoid excessive development, thus getting too much detail, which will utterly destroy the result aimed at. Therefore, the clouds only should be fairly well brought out, while the darker portions should be represented by almost clear glass." Printing from such negatives should be carried much farther than for ordinary views, and some very effective results obtained if, in toning the prints, the color is carried well into the purplish black tones ; a greenish color is also extremely attractive for some subjects.

SEASONABLE WORK.

As the signs of approaching spring and summer suggest a change from the winter's work and make possible a closer acquaintance with the charms of Nature, the camera is very naturally in the minds of those who know by experience its value as a companion in out-of-door life. There are, as many of us know, only a comparatively few weeks in the whole year when it is possible to obtain records of the new life springing into being after the lapse of winter, and those few weeks should be filled full of earnest effort toward the gathering in of such scenes and incidents as are characteristic of spring time. City life in the streets of our large cities takes on an entirely new aspect, and with the advent of peg top and marbles, many an interesting group may be found and perpetuated. In the country, too, are no end of seasonable subjects presented, not only in inanimate Nature, but among the cattle and lower orders of animal life; and in the seeking out such subjects the worker should keep constantly in mind the maxim that his work, to be of value, must have a motive. It is easy to photograph this, that or the other thing and obtain a good negative, but in many cases the result remains a negative forever.

In other words, there is a vast difference between a good negative and a good picture. Composition should be as much the study of the out-of-door photographer, be he amateur or professional, as it is the business of the landscape artist, and even more so, from the fact that the artist may arrange his groups and surroundings to fit his theme, omitting and adding subject and accessory to his taste, while the photographer has no means of doing either, but can only cover up in part or render less prominent in his picture such things as may be objectionable to him, by the choice of position or the introduction of objects in such a manner as may lead the eye from obtrusive lines and angles into a restful appreciation of the story told by his view. The ability to accomplish this successfully is evidence of the true artistic instinct and can hardly be overestimated.

The selection and rendering of such choice bits of landscape as abound all over our country is a delight to the true photographer, and in this work he seeks quality, not quantity, and is more content if he may, in a season, achieve one or two successes than if he accumulates a mass of poor material. This, too, is that which brings back to the worker the fullest sense of satisfaction and enjoyment, inasmuch as to interpret Nature is first to be able to enjoy and appreciate her. We should like to chronicle, at the end of the spring time, a marked advance in the character of amateur work on these lines, and believe it will be possible to do it. There are lots of good books on composition and kindred topics that may be read to advantage, but the best advice and instruction is of little use without practical application.

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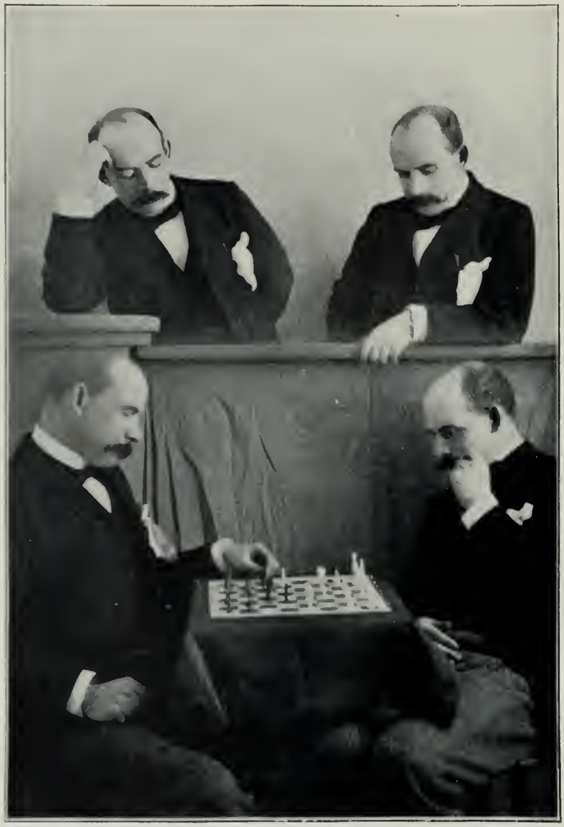
Copy for May issue must be in our hands by or before April 15th.

A METHOD OF MAKING TWO, THREE, OR MORE EXPOSURES ON ONE PLATE.

By M. H. Lockwood.

THE author of the following very interesting explanation and illustration, in speaking of his work, says that he has had less than a year's experience in the photographic field, and that all his own work he does himself. The illustration shown was taken by the light from a side window only. He says: "I have thought this apparatus could be made in connection with a Rösch vignetter, and Fig. No. 3 shows it with the vignetter attached. The whole instrument may be made of tin or sheet metal."



"Small clips of metal or buttons may be used to hold the 'door screens' in place. These may be easily attached to the ears *a*, *b*, *c*, *d*. I have not shown them for fear of complication, but I have such an arrangement on my model."

The door screens *A* and *B* are hinged to swing exactly on the center line, so there is no danger of not having the exposures join, and without trouble of a sliding screen, or danger of displacing the instrument.

Each door screen may be removed by slipping it up and unseating it from the lower bearing.

When both the door screens are removed, the vignetter may be attached, or, if this is not used, the field is free from obstruction. The vignetter may be hinged so as to drop below out of the way, when not in use, or may be entirely removed.

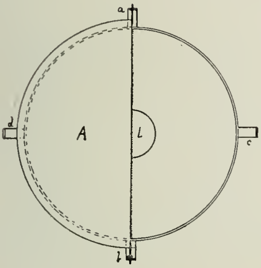


FIG. 1.

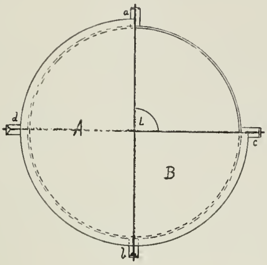


FIG. 2.

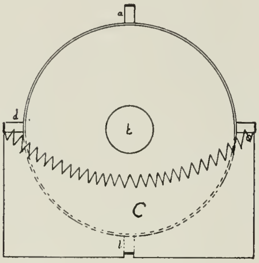


FIG. 3.

It would be well to arrange the attachment so that the instrument may be turned to any other angle; for instance, if turned 45 degrees, the exposures would be in the position shown in the diagram *A*. This would allow of various groupings.

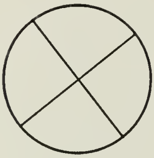


DIAGRAM A.

Fig. 1 shows position for double exposure, with but one of the door screens (*A*) in place.

Fig. 2 shows both screens in place, as for making three or four exposures on one plate (*A* and *B*).

Fig. 3 shows apparatus with door screens removed and the vignetter in place.

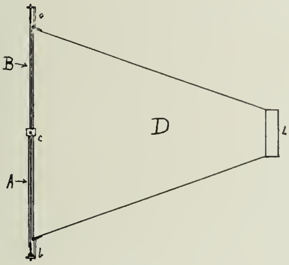


FIG. 4.

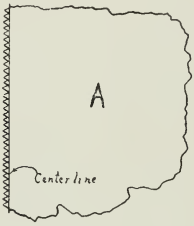


FIG. 5.

Fig. 4 shows side elevation with door screens in place.

Fig. 5 shows section of door screen (*A* or *B*).

It will be noted that the method of avoiding an over-exposed band at the line of juncture is to be found in the saw-tooth edge extending beyond the central line about one-sixteenth of an inch; it will also be evident that by attaching doors at other points than those indicated in the diagrams, which would be easily possible, the plate might be divided into six, eight, or even more sections.

It would also be possible to mount the instrument on a separate stand that could be adjusted to any position, thus rendering it entirely independent of the camera.

TIMING DEVELOPMENT.

IN a valuable paper read before the Doncaster Camera Club of New England, Mr. W. D. Woodley stated some interesting facts as the result of his numerous experiments in the timing of development. He said in part:

"Judging by my early experiences in the study of photography, I am led to believe that development may be considered the *pons asinorum* of our interesting art-science. I had always been more or less unsuccessful in producing respectable negatives by what is termed tentative development, and the papers by Mr. Alfred Watkins, of Hereford, in the early part of 1894, entitled 'A Method and Instrument for Timing Development,' showed the question to me in quite a new light.

"It is out of my province in this paper to deal with the subject of correct exposure, and I will merely explain, in passing, that I believe this is considered by Messrs. Hurter and Driffield to be a period which produces a range of densities having a regular mathematical ratio to each other. Mr. Watkins pointed out that, in order to secure a correct range of gradation, the time of development was as important as accuracy in exposure; and while it must be borne in mind that his method of timing development will not compensate for gross errors in exposure or the use of an unsuitable developer, I shall endeavor to demonstrate to you this evening that within reasonable limits of correct exposure (which may be determined by one of the numerous exposure meters or tables on the market), together with one of the commonly known formulas for development, it is possible to produce very satisfactory negatives.

"The latitude which may be permitted in exposure varies with the make of plate. I have obtained very good results on some plates with as much as twelve times the normal exposure, while other plates would not yield a suitable negative with more than eight times the normal exposure.

"Having dealt with the question of exposure, I will now turn to the subject of the actual development of a plate; and for the purpose of timing, either an ordinary watch, or, preferably, the eikronometer invented by Mr. Watkins (which is a small clock, and can be more easily seen in the darkroom, and which, also, practically does its own calculating), may be used. The time which elapses between the pouring on of the developer and the first appearance of the high lights of the image is carefully noted, and this time, multiplied by a suitable factor, gives the total time for development of the plate. I wish here to draw your particular attention to the multiplying factor, which is a variable one, being governed by the class, and, in some cases, strength of developer employed, and also upon the density of negative which suits the taste of each individual operator. The quantity of bromide is of importance, for if this be increased beyond the normal proportion of, say, half a grain per ounce, a lower factor must be taken and this rule holds good for nearly all the developing agents.

"With regard to the alkali, provided the strength is kept within limits found reasonable in practice, and does not cause the time of appearance to be inconveniently short for observation, the actual quantity per ounce of developer does not seem to be of much importance. Ammonia is not suitable, owing to its quickly losing strength by evaporation. Carbonate of soda or potash and the caustic alkalies are practically free from this objection, and it will be found more satisfactory to use one of these. When potash is used in conjunction with pyro, it appears to have a tendency to produce density a little quicker than when soda is used, and a somewhat lower factor is desirable.

"The quantity of sulphite and the temperature of developer, if within reasonable limits, may also be ignored.

"As to practical results, I have here a few negatives which have been developed with several of the developing agents ordinarily employed, and, although I do not claim that they are by any means perfect examples, still, when I tell you that they have all been timed from the first appearance of the high lights, and never from the first appearance of the image looked at until fixed, I think you will agree with me that the results are very encouraging and conclusively point to the method being a practical one. My arguments in support of it have frequently been pooh-poohed, but the greatest tribute to its worth is the fact that one of my bitterest opponents and a strong supporter of the tentative school has been won over, and now times his development.

"I have not tried what results can be obtained with lantern slides, but I intend to experiment in this branch, and should say that it is possible to obtain more uniform results by timing than it would be by judging the density in the ordinary way.

"A word or two in regard to exposure meters or tables: I do not agree with those who oppose the use of these aids, as I think that most of them, especially those on the actinometer principle, are of great assistance in judging exposure, and I cannot believe that it is possible to arrive at a correct estimate by the judgment alone. I can safely say that my percentage of failures since I used these aids and timed my development has dwindled down to an insignificant amount compared with what they used to be, and my inferior results must now be attributed to carelessness in manipulation, accidental fog, uncertain hand-camera exposures, etc. You will notice that even the snap shots, which I will pass round, have turned out exceedingly well, considering that some of them were taken in the height of summer and others in the middle of October, all about the same time of day, with the same stop and same speed of shutter.

"In conclusion, I would strongly recommend beginners, at any rate, to adopt the system and use an exposure table or meter, and I am sure they will be glad they have taken my advice, for, not only will they turn out a large percentage of good negatives, but they will not be disheartened by the repeated failures which so often fall to the lot of the novice."

Copyright, 1895, by
M. B. Parkinson.

AN EASTER INTERVIEW.

Engraved with
Richards' Cross-Line Screen,
150 Lines.

THE FOCUSING SCALE.

By Charles E. Manierre.

It occasionally happens that one wishes to add a new mark to the focusing scale of his camera, or to test the accuracy of the marks already thereon. To do this, it is necessary only to have the infinity or general focus mark and one other mark correctly given.

These two can be determined by experiments with the ground-glass, using the largest diaphragm which is furnished with the lens, and remembering that all distances to objects which are to be focused upon must be measured from a point one focal length in front of the lens.

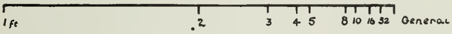
The several distances from the infinity or general focus mark upon the scale to the other marks are proportional to unity divided by the number of feet indicated by each mark; or, in other words, the distances of the marks from the general focus mark are proportional to the reciprocals of the number of feet indicated by each mark.

For example, if we find, by measuring, that the 10-foot mark, which we know to be accurately placed, is $\frac{1}{2}$ an inch from the general focus mark, and we wish to locate a 15-foot mark, we have the proportion— $\frac{1}{2} : x :: \frac{1}{10} : \frac{1}{15}$, or $x = \frac{1}{3}$ inch.

Therefore, the 15-foot mark should be $\frac{1}{3}$ of an inch from the general focus mark. In the same manner, if the 40-foot mark is found to be $\frac{3}{16}$ of an inch from the general focus mark, and we wish to locate a 5-foot mark, we have the proportion $\frac{3}{16} : x :: \frac{1}{40} : \frac{1}{5}$, or $x = 1\frac{1}{2}$ inches.

If the actual distances on the scale are not proportional as above, the scale markings are not correct.

As a matter of fact, many hand cameras have scales more or less incorrect, and some are not so placed as to indicate truly the general focus point.



The diagram shows a camera scale marked from the general focus to 1 foot. If the whole length of the scale is taken as the unit of measure, it will be seen from the foregoing rule that from the general focus mark to any other mark will be a fraction of the whole unit, as follows: To the 2-foot mark will be half of the scale; to the 4-foot mark will be one-fourth of the scale; to the 16-foot mark will be one-sixteenth of the scale, and so on. This is true, also, of distances of less than 1 foot. The $\frac{1}{2}$-foot distance will be double the scale, and a $\frac{1}{3}$-foot distance will be treble the scale.

To demonstrate the truth of the foregoing we take the well-known formula:

$$d = \frac{f^2}{D}, \text{ in which}$$

$f =$ the focal length of the lens,

$D =$ the distance in inches, of the object focused upon, measured from a point one focal length in front of the lens.

$d =$ the distance, in inches, on the scale from the infinity or general focus mark to the mark indicating the distance D.

Let d' and d'' be any two values of d, and D' and D'' be the corresponding distances of the objects focused upon.

We then have

$$d' = \frac{f^2}{D'} \text{ and } d'' = \frac{f^2}{D''}$$

or

$$d'D' = f^2 \text{ and } d''D'' = f^2$$

therefore

$$d'D' = d''D''$$

D' and D'' are measured in inches in the equation, but by dividing them by twelve we reduce them to feet and may hereafter deem them to be expressed in feet.)

Dividing by D' D'' we have

$$\frac{d'}{D''} = \frac{d''}{D'} \text{ or } d'\frac{1}{D''} = d''\frac{1}{D'}$$

stating this last equation in the form of a proportion,

$$d' : d'' :: \frac{1}{D'} : \frac{1}{D''}$$

This proves the first mentioned rule.

Where D' is taken to be 1 foot, and the corresponding d' is taken as the unit of the scale, the proportion last mentioned becomes

$$1 : d'' :: \frac{1}{1} : \frac{1}{D''}, \text{ or } d'' = \frac{1}{D''}$$

that is to say, the distance of any mark from the general focus mark is equal to that fraction of the whole scale (from the 1-foot mark to the general focus mark, which is expressed by unity divided by the distance in feet indicated by said mark.

OUR ILLUSTRATIONS.

OUR frontispiece this month is from Frederick's studio, and will, we believe, carry suggestions in lighting and posing that will be of value to our readers. The subject is a very happy one, and the handling is strong and effective. Mr. Parkinson's conception of "An Easter Interview" is novel and pleasing, and the view by Mr. Ingram tells its own story in a remarkably restful and truthful manner.

"THREE OF A KIND."

ACTIONS OF BROMIDES, IODIDES AND CHLORIDES IN THE DEVELOPER.

By J. v. Norath.

A GOOD deal has already been written about developers and their constituent parts, but very little is thought about the causes of effects that may have been obtained, perhaps, accidentally. To be sure, now and then some of the journals have something to say in regard to this, but since they do not always describe as fully as might be, to meet the popular desire, I therefore venture to write a few lines concerning the behavior of the halogene salts in the developer. Theoretical suppositions will be compared with practical results.

Ordinarily the action of bromide of potassium in the negative developer is called "retarding," an expression which is entirely incorrect. After adding bromide of potassium, the development will, of course, always take a longer time, but this may also be caused by other reasons. But the question which interests us is, how does the bromide of potassium act "chemically"? Its action can easily be demonstrated by an experiment. If we take a highly sensitive bromide of silver plate and immerse for a few moments in a 3 per cent. bromide of potassium solution, then wash and dry it, afterward exposing and developing it, we find in the exposure and development that the same has lost considerably in sensitiveness. The process it passed through is simply the following: The silver bromure has absorbed part of the bromide from the bromide of potassium solution, which is not to be wondered at, considering the great affinity between silver and bromide. The original value of bromide in the emulsion will thereby be increased by this absorption, and the greater the increase of bromide, so much less is the sensitiveness.

If, instead of applying a bromide of potassium solution by itself, we use the same in the developer, the same effect is obtained; that is, all parts of the emulsion upon the plate, exposed or not, will be richer in bromide. The effect is therefore obtained as if there had been a so much shorter exposure; and as the developer was composed for a different exposure, the development will take a longer time.

From this simple fact a number of practical and important appearances can be explained.

Suppose we have a normally exposed plate, and apply a developer containing much bromide of potassium? The consequence is now, that the weakly exposed picture parts absorb so much bromide that the developer does not affect them, or, if at all, very faintly. The consequence is, then, that no reduction, or a very weak one, will take place, while the stronger exposed parts will show a medium value of bromide. But bromide of silver, with a medium value of bromide of potassium, furnishes very dense precipitates, and we obtain in consequence thereof the well-known "dense negative," with clear shadows, if we develop long enough, until the half-shadows have sufficiently appeared.

This effect can be used to advantage if line productions are wanted. On the other hand, one can operate without loss in details in such a way that, for instance, landscapes are developed until the sky is visible, and then this part is treated to a bromide of potassium solution, which is applied with a brush, whereby a density is obtained that otherwise could not be had. Applied in the shadows, their clearness is increased.

By application of only a small quantity of bromide of potassium solution in the developer, the tendency of the unexposed parts to fog is reduced, their sensitiveness suffering a corresponding reduction, and therefore not being so sensitive to the action of the developer.

Now we come to the question : What is the action of the different developers, changed by bromide, on the picture film ?

To develop the picture, it is necessary that the bromide of the bromide of silver is absorbed at the exposed parts to form metallic silver. If we have now a developer which proves to be good for a normal, correctly exposed plate, it is clear that for a plate to which, by subsequent bromide absorption, was given the character of another exposure, it must behave a little differently.

The answer to this question is easy : That developer absorbs the most bromide which has the most energetic action. But as, also, a good bromide-absorbing developer acts more energetically than another, a better effect will be obtained even there, where another proves to be unsatisfactory. But, as we have found that subsequent bromide application and short exposure are the same, for the developing process, we can study the behavior of the several developers very easily on instantaneous views.

For instantaneous views, amidol, metol, hydroquinone and eikonogen are very good. Of a less good effect is pyro soda, and still worse (without preliminary bath) is oxalate of iron.

The action of a bromide of potassium addition will therefore show its greatest effect in the developer as above in reversed rotation. Oxalate of iron is therefore influenced most and strongest by a bromide addition, and amidol the least. It may be worth remarking here that the action of the bromide of potassium will show strongest in the alkalic developers, which require considerable quantities of alkalies for the full development of strength. Here is evidently a reducing action taking place by absorption of bromide from the bromide of silver. Pyro with ammonia is therefore superior to pyro soda, having the tendency to absorb larger quantities of bromide.

It is therefore not of advantage to add larger quantities of bromide to a developer if the exposure is not to be correspondingly long, as the character of the negative will suffer. For special purposes, where hard and dense negatives are required, a larger quantity of bromide of potassium solution may be added. Here the development is directed towards the dense parts, and the details are afterwards brought out with a fresh developer.

Iodide of potassium is in its properties similar to bromide of potassium, but surpasses the same in effect. If applied to bromide of silver plates, the iodide will connect with the silver bromure and form a bromo-iodo double salt, which is much more difficult to reduce than bromide of silver. A small quantity is sufficient to retard the development considerably and to produce strong contrasts. Plates free from fog are obtained by adding a few drops of a 2 per cent. solution.

A practical use of this property of the iodide salt is made in the production of line negatives upon ordinary dry plates. The plate is exposed at least twice as long as otherwise would be required, and a developer is applied which contains iodides besides bromides.

For this purpose an iodide solution 1 : 50 can be taken, as well as a bromide of potassium solution 1 : 200. Of each of these solutions, 5 cubic centimeters are taken to a developer quantity of 100 cubic centimeters. The development lasts very long, but is thoroughly effective in producing the desired black-and-white negative.

In portrait photography the iodide salt can find no application on account of the slow development and tendency to hardness, but for landscapes it is suitable. The developed plate must be washed well, because the iodide will easily cause yellow fog, particularly in warm weather.

Chlorides have generally a retarding influence, but we have to consider in this connection, whether chloride compounds or bromide of silver are to be developed. Here we find, besides the retarding action, the peculiar fact that chlorides in the developer, favor in all cases, under suitable circumstances, the formation of a brown instead of a black precipitate upon bromide of silver, while a bromide of potassium addition in chloride of silver shows a tendency to produce greenish-black tones. A normally exposed bromide of silver film shows, with the addition of a chloride metal (chloride of potassium, or chloride of sodium), a greater clearness and increased density than without this addition. If, however, the film is exposed very long, and treated with an oxalate of iron developer containing chloride of potassium, a brown, well-modeled picture will be obtained in place of a black one. In accordance with these facts, the following formula is recommended for bromide paper :

A.

Oxalate of potassium	330 grams.
Water	1 liter.

B.

Chloride of potassium	130 grams.
Water	1 liter.

C.

Sulphate of iron	24 grams.
Citric acid	2 "
Bromide of potassium	2 "
Water	500 cubic centimeters.

The richly exposed paper is soaked in water and developed with a mixture of—

A	20 parts.
B	5 "
C	5 "

The more that is taken from B (chloride of potassium), so much more brown are the tones obtained.

The process is simply explained, if we consider that bromo-chloride of silver forms here. This has the tendency to develop in color, and the more the chloride acts upon the silver chlorure, so much more the product will accept the character of the chloride of silver and furnish lighter tones. Or, stated in another way, chloride of silver, when brought in contact with bromide of potassium solution, will form a similar product, namely, chloro-bromide of silver, which has a tendency toward the formation of lighter, warmer tones, but causes with a small bromide value (by short exposure) the characteristic greenish color, which with increasing bromide value passes through brown-black towards sepia.

The fact might still be doubted, that the chloride exercised this influence, and still it is decidedly so. An analogous proceeding, confirming this presumption, we find in the platinotype process. Platinum prints are generally developed in a hot or cold oxalate bath and developed with a black tone. If chloride of mercury is added to the developer, a brown tone will be obtained instead of a black one.

Now it is known how easily chloride can be obtained from the mercury. It can, therefore, be accepted that the mercury will influence in a similar manner the platinum print, as we have demonstrated is the case with chloride of potassium and the bromide of silver.

Objection might here be made, that the mercury was probably reduced with brown color and that it precipitated physically upon the black platinum picture, similarly as in the uranium toning of platinum pictures. But there is no reason for this, as similar proceedings would then be found in the intensification of negatives. These, however, have always a purely blackish-gray color.

We come to a more satisfactory end by accepting, that under the influence of the chloride a partial reduction to metal takes place, but that a sub-chloride product of an unknown composition is formed, which, however, can be just as permanent as the gray-black metallic precipitate.

These products are always colored and may be produced from chloride, as well as from iodide of silver, or the double salts of these silver compounds. Although the chloride has not alone the tendency for the formation of colored products, it must still be remarked that a value of chloride salts is observable in the developer, particularly in the direction of its application to highly sensitive bromide of silver films.

Considering the fact, that chloride salts act differently in the developer for bromide of silver films than for chloride of silver films, we may by experiments come to results which prove favorable in one or the other case, and secure thereby to the technical part of development a larger playroom and better control.

Translated by

Henry Dietrich.

LANDSCAPE PHOTOGRAPHY.*

By A. T. Crane.

IN a paper read before the Ulster Amateur Photographic Society, of Belfast, England, by Mr. A. T. Crane, a number of valuable hints and suggestions were given, which come into line with the season's work now at hand, and may be madė to apply with equal force to the conditions here existing. Mr. Crane said :

"Landscape photography has undergone a great change during the last ten years or so, breadth, composition, pictorial and atmospheric effects, being more studied than mere hard and sharp transcripts of Nature. This change can be seen by visiting the principal photographic exhibitions or by studying the reproductions in the photographic press, medals and prizes in competitions being generally awarded to such examples as show some artistic feeling in addition to technical excellence. Some of these modern landscape photographs more resemble the delicate washes of an artist's brush or a mezzotint engraving, than the clear, sharp, and hard prints glittering with fine detail all over, which were formerly considered the acme of perfection in photography. The works of H. P. Robinson, A. Horsley-Hinton, James A. Sinclair, and many others, may be mentioned as exponents of the artistic side of photography. Apart from the selection of subject, these pictures are produced by special means, such as the use of large stops, naturalistic focusing, and rough-surface printing papers.

"The most important point is, of course, the choice of subject. The most delightful pictures can sometimes be made from very simple material, such as would be passed over by the average amateur. One must possess some artistic taste and judgment to be able to see them, for such pictures should awaken pleasing sensations and should possess a beauty of their own sufficient to attract the admiration of the observer without his immediately asking, where is it? Evening effects taken against the light, marshland scenes, and the estuaries of our rivers, including mud and mist effects, lend themselves readily for artistic treatment.

"Those anxious to succeed in artistic landscape photography must have unlimited patience and be willing to spend a length of time over choosing subjects. It will not do to set up the camera, focus, and expose the plate right away. To begin with, the subject may look better at a different time of day with a different lighting or from a different standpoint; therefore, it should be studied all round before deciding upon the picture.

"It is often advisable to use the tripod at half its height; by this means we can do away with an excess of ground, and also give more prominence to the foreground.

"If you have a rapid rectilinear lens, it is sometimes better to use one combination of it. Suppose, for instance, we are on marshy ground or bog, and want to get our subject larger, and cannot get nearer to it, then by using one combination of our lens we can often exclude objectionable features which may spoil the picture in hand. It is better to use the back combination, the convex side being next the plate, as we shall by this means get so much less spherical aberration (that is to say, the image will be sharper at the edges) than if we used the front combination. This single lens also gives softness, but at the same time the focus is doubled and the exposure quadrupled, it requires more stopping down for sharpness than a doublet, but will cover a plate about twice the size.

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*The Amateur Photographer, February 26, 1897.

"Now, as to focusing. I always focus sharply some object in the middle distance at a point about a third of the way from the side of the plate, then I swing the back vertically to bring the foreground and distance into approximate focus, and to sharpen things up generally. This brings me to the subject of stops. For open landscapes I generally use *f* 16, but for old cottages, woodland or glen scenery, *f*/22, or smaller, according to subject. The larger stops give a more pictorial effect in open landscape, and, throwing the distance slightly out of focus, gives an appearance of softness and atmosphere. I focus sharply on the principal object, and make other parts of the picture subservient to it by putting them slightly out of focus.

"What is called naturalistic focusing (that is, an entire absence of sharpness) is suitable for some subjects, but, in my opinion, should not be carried too far, or the result may be termed a fuzzytype.

"For plates I recommend the medium speed, they allowing more latitude than the more rapid brands. Isochromatic plates are better for open landscapes, as they give a truer rendering of color and distance, and it is more easy to get clouds on the same plate.

"With regard to exposure, whenever possible, I recommend short exposure, thereby securing gleams of light, ripples on water, passing gleams of sunshine, or the shadows of a cloud, which add very much to the pictorial effect. There are certain rules of composition which should be remembered: (1) The principal object should not be exactly in the center nor at the extreme edge, but about midway between the two points; the same rule applies to a vanishing road or street. (2) The horizon line should not be exactly across the middle of the plate, but either above or below it; in the latter case a strong cloud effect would be necessary. (3) The horizon line should be broken whenever possible by trees, etc. (4) There should not be too many points of interest in a picture. The interest should be concentrated to one point as much as possible. (5) Avoid unbroken straight lines in a picture; break them up in some way with a figure or cart. (6) Lines running out of a picture should be avoided; there should be something at the edge to prevent the abrupt cutting off, and, generally speaking, curved lines are always better than straight lines in our composition."

After some further remarks on composition, and advice with respect to the printing in of clouds, in which it was pointed out that the clouds should suit the landscape, with respect to lighting, density, etc., Mr. Crane said the picture could be much improved artistically by judicious trimming, and, before doing this, recommended placing pieces of paper round the picture, to see what was the best to cut off and the best to leave in the picture.

In closing, Mr. Crane strongly urged his hearers to make themselves familiar with the masterpieces of the day, and to study carefully all good examples of composition.

BLUE TONES FOR LANTERN SLIDES.

A WRITER in the *Photographic News* for February 26th recommends a blue tone for lantern slides of snow subjects, claiming that the bluish color gives a more faithful rendering than can be had through the clear glass of the slides, and gives the following suggestions for the coloring:

This may be accomplished—

"Firstly, by placing a piece of blue glass in the slot made for that purpose in the lantern objective.

"Secondly, by combining with the slide a blue glass to act as cover glass.

"Thirdly, by toning or staining the film of the slide.

"The toning can be accomplished by an ordinary sulpho-cyanide and gold toning bath.

"To stain the film, I think the following is the best method. It is based upon the chemical properties of potassium ferridcyanide or red prussiate of potash and ferrous sulphate:

"Soak the slide in a uranium intensifier, which, of course, contains the potassium ferridcyanide until the color has changed to red; then wash until all greasiness has left the film; afterwards place in a bath of ferrous sulphate 5 per cent. solution, which will change the color from red to a clear transparent blue, suitable for snow scenes and moonlight pictures."

A NEW DALLMEYER STIGMATIC LENS.

MR. DALLMEYER has just perfected a new universal lens of great rapidity, which will be suitable for every class of photography, from portraiture to wide angle work, and the production of it seems bound to create almost as much of a sensation as did his tele-photo lens when it appeared. This new lens is perfectly free from spherical aberration, therefore allowing the full aperture of the lens to be used in focusing, without danger of any alteration taking place in its focal length when the diaphragm is stopped down, as is the case with many lenses of the wide angle type. It is of simple construction and extremely rapid, working with a stop *F*/6. For use in galleries of limited length and for group work in general, it will prove of great value; and while we have not yet had the pleasure of seeing this lens, we look for its appearance with much interest, and, coming from the hands of Mr. Dallmeyer, can safely predict for it a great success.

BLACK LINES ON WHITE PAPER.

THE following formula is taken from the *British Journal of Photography*, and is a résumé of Mr. Eugène Gay's invention for the reproduction at small cost, of drawings in black upon white, and is claimed to be especially valuable for architects, masons, etc., where copies of tracings are desired :

" This process consists in treating glazed drawing-paper with a mixture composed as follows :

Gum arabic	100 grams.
Bichromate of potash	40 "
Water	300 centiliters.

" A certain quantity of commercial carbonate of soda—½ a gram, for example—is preferably added to the water.

" This mixture is spread, by means of a plush brush, upon the paper, which is then dried in the usual way.

" The paper thus rendered sensitive is ready for the reproduction of a drawing on tracing paper.

" As this paper is much more sensitive than ferro-prussiate paper, there is no need for a longer exposure to the light than five to fifteen minutes, according to the clearness of the day and the quality of the tracing paper, the opacity of which varies greatly.

" The paper, after exposure, shows a dark yellow drawing upon a brownish ground. The paper is then submitted to a first washing, which must be very delicately carried out ; then to a second, with the aid of a sponge, until the lines of the drawing appear hollow, owing to the dissolving action of the water.

" The paper is then taken out of the bath, dried first with blotting-paper, and then exposed to the air.

" The paper is afterwards coated by means of a sponge with the following composition :

Gum lac	75 grams.
Lamp-black	70 "
Spirits of wine of commerce	750 centiliters.

" It is then plunged into a bath of hydrochloric acid, in which it is allowed to remain for about twenty minutes.

" The paper whitens under the action of this acid, and the drawing comes out in black.

" It is then cleaned by brushing and washing in pure water, then dried, and the operation is complete.

" The claim is for a process which consists in sensitizing the paper by means of a coating of gum arabic, bichromate of potash, and water ; then drying, and, after exposure, washing ; then drying and coating with a composition of gum lac, lamp-black, and spirits of wine, plunging into a bath of hydrochloric acid, and then washing and drying."

TO TEST PAPER FOR HYPO.

IN cases where it is suspected that the hypo has not been wholly eliminated from the mounts, it is recommended that a few pieces of the mounts be put into a flask and distilled water poured over them, after which they should be subjected to a boiling for from five to ten minutes. If, after the addition of a few drops of a 5 per cent. solution of nitrate of silver, the water shows a brownish or yellowish discoloration, the presence of hypo may be assumed.

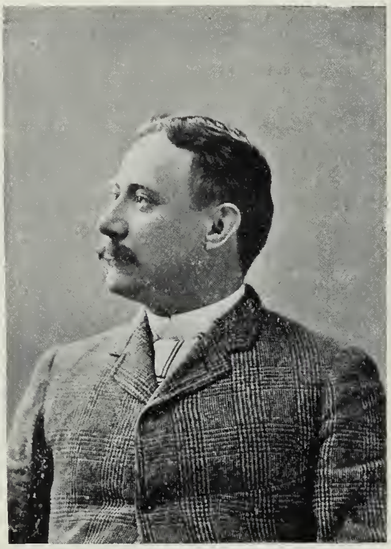
Dr. Vogel suggests making a very dilute starch paste and adding thereto tincture of iodine. The delicate light-blue color of this combination is quick to show the faintest trace of hypo.

P. A OF A. CONVENTION.

THE dates fixed for the Convention of the Photographers' Association of America are July 12th to 17th inclusive. This arrangement of time will please many, as it will not interfere with school work nor the National holiday. A full list of prizes will be announced in the next issue of the BULLETIN. It is intended that this shall be the Red Letter Convention of the Association. There will be a Ladies' Entertainment Committee to take charge of the visiting ladies while the meetings are in session, which will relieve their escorts of responsibility in that direction, and make it more agreeable to the visitors than if left to their own devices for means of entertainment.

E. C. DANA.

WE regret to record the death of Mr. E. C. Dana, which occurred at his home in New York on February 27th. Mr. Dana has always held a high place in the photographic profession, and his loss will be keenly felt. Mr. Dana started in his photographic career in Brooklyn about twenty years ago, having learned what little he knew up to that time from Turner, of Boston. After a short time spent in Brooklyn, he closed his studio there and opened a new one in New York at 14th street and Sixth avenue, where he remained for about ten years, achieving great success. He then removed to 872 Broadway, where his former successes followed him.



In the last few years, Mr. Dana has opened another studio in Brooklyn, and one in Pittsburgh, Pa., and last fall saw the completion and opening of his new and beautiful studio higher up Broadway at the corner of 28th street. All these studios were in active operation at the time of his death.

A NOVEL METHOD OF COMBINED CLEARING AND INTENSIFICATION.*

IT is perhaps rash nowadays to apply the term "novel" to anything in connection with photography, but the process about to be described presents certain features which appear to warrant the application in this case. The method has been more especially tested in connection with what are known as "process" negatives, both in line and half-tone, and chiefly with collodion, though it appears to answer equally well with gelatine, if the fact of silver intensification being used does not, with many operators, place it out of court for that purpose. We are bound to admit that silver intensification, as applied to gelatine plates, involves a considerable degree of care; but, when properly worked, the results are, we think, better than can be obtained by any other process. So far, we have not tried it with negatives in natural half-tone, so are scarcely in a position to say whether it works satisfactorily for that class of picture.

In the method of intensification itself there is really nothing new, since it is only the ordinary pyro and silver process employed from time immemorial with collodion plates; nor, so far as that is concerned, is the clearing solution itself novel, though it is rarely, if at all, used. But in the combination of the two a novel point arises, which we, at least, have never seen mentioned before, namely, that the intensification of the deposit and the clearing of the transparent portions of the negative proceed simultaneously. We were led to the discovery of this curious circumstance in the following manner:

Having occasion to intensify a line negative, we proposed to do so by completely bromizing the image, *i. e.*, converting it into bromide of silver and redeveloping with alkaline pyro, followed by silver intensification, a method which we have often found successful when other plans have failed. For the purpose of conversion, we improvised a bromizing solution by gently heating together equal parts of nitric acid and bromide of ammonium with a little water until the bromide was liberated. Upon applying this solution, diluted with water, to the negative to be treated, the image was very slowly changed to a grayish white and somewhat metallic color, quite unlike the appearance produced under similar conditions by bromide of copper; and, after a very protracted application, it failed to penetrate the film completely in the densest portions of the negative. However, as we concluded that these portions required less intensification than the rest, we proceeded. It occurred to us to apply the pyro and silver first in daylight, to see if it were possible to build up a silver image of any value before reducing the bromized image with alkaline pyro, but, to our surprise, beyond a very slight alteration in the surface color, not the slightest effect could be produced except on those portions where the bromizing solution had failed to penetrate. Here intensification proceeded in the usual manner, producing the very opposite result to that desired, namely, an increase of density where it was least required.

This was a sufficiently curious state of affairs to deserve further investigation; we concluded that the bromized image must have taken on some silver, even in the parts that showed no signs of intensification. So, to enable us to judge if such were the case, the negative was " fixed" with cyanide, when every vestige of a picture disappeared, except those portions where, as already recorded, the bromizing solution had failed to penetrate and intensification had taken place. These portions, which represented the highest lights of the engraving copies, remained of full printing density, while the rest of the plate was clear glass.

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* *British Journal of Photography*, February 19, 1897.

We naturally repeated this experiment with sundry variations, the outcome of which was the discovery that wherever the image is completely converted by the bromizing solution into whatever compound of silver it may be—for we do not think it is bromide—absolutely no effect accrued from the action of the pyro and silver, and very little from the alkaline pyro. But, where the effect of the solution is only partial, intensification goes on in the ordinary way.

To come back to the title of our article, the way this process works in practice is as follows: We will take a collodion negative of a line subject, and if the transparent lines are not perfectly clear, or nearly so, we give a slight wash with the bromizing solution, followed by one of cyanide, simply as a clearer. It is not needful at this stage that the lines be absolutely transparent; for the sake of experiment it is, perhaps, preferable that they are not; but, whether or not they are free from visible deposit, the next operation will fill them up with an opalescent deposit of some kind that would lead to the supposition that they had been rather badly veiled.

The next operation consists in applying the bromizing solution, in a rather dilute state, until the transparent portions are full of the opalescence mentioned, and the whole surface exhibits a slight "bloom," showing that the solution has acted generally. At this stage the color by transmitted light has become browner, which gives an appearance of greater printing value. The negative is then thoroughly washed.

Now, to apply to the image in this condition and in broad daylight a developer of pyro and silver would appear to be the best possible way of filling up the transparent lines, but that is just what does not occur. As soon as the pyro and silver is applied, a change commences, and the density begins to increase much more rapidly than under ordinary conditions, that is, at least, where any deposit of silver exists, but the lines remain clear, even the opalescence becoming less prominent as the action proceeds, which it will do until the image is almost opaque. If the film be now washed, it still presents the " bloom " it had before intensification, and the image is dull and buried; but, on the re-application of a solution of cyanide, the dullness and bloom clear away instantly, and the picture stands out bold and clear as a glass positive, without any loss of the freshly attained density, but with the transparent lines clearer and sharper than before the treatment.

The curious circumstance is that, if the treatment be repeated, as it may, time after time, the transparent portions, however clear, are invariably rendered opalescent, and each re-application of the cyanide " cuts " more and more into the finer details, though with far less " raggedness " than would be the case if the iodine and cyanide method were used.

We do not at present attempt to offer any definite explanation of the working of the process or what is the action of the bromizing solution. Its composition even is open to much doubt, but it probably contains at various times free bromine, hydrobromic acid, together with the bromide of nitrosyl, which, like the chloride in the case of aqua regia, we may suppose to be formed by the combination of the free bromine and nitric oxide. At any rate, this solution, like the corresponding one made with nitric acid and salt, behaves entirely differently upon a negative image to one of aqueous bromine, or chlorine, or even to a dilute solution of aqua regia.

Some years ago the solution formed by the action of nitric acid upon common salt was mentioned in these columns as a useful clearing agent for the flat, over-exposed—or, as they were termed, "burnt-up"—negatives then so frequently met with. It was pointed out that its action differed from other bleaching solutions, such, for instance, as chloride of copper, in that it went through the thin shadows of a negative with comparatively little action upon the high lights, and thus produced in the class of negatives referred to, the contrast they lacked. This action was set down at the time to the aqua regia, formed by the reaction ; but aqua regia, made from the mixed acids, does not produce a similar result until it has become thoroughly decomposed, either by age or heat. The effect is more probably due to the chlorides of nitrosyl already mentioned, which are among the products of the decomposition. We may add, that the solution of common salt and nitric acid acts equally as well in intensifying as the one of bromide.

The peculiar clouding of the transparent lines remains to be explained. We were at first inclined to attribute it to the decomposition of some soluble silver salt left in the film through imperfect washing after the cyanide, but the most prolonged washing we have given, fails to arrest it. It is more likely, we think, to be the result of the solvent action of the bleaching solution on the silver of the image ; but, whatever it may be, it appears wholly inert.

We see no reason to doubt the applicability of this process to negatives in natural half-tone, though we have not tried it yet for that purpose, but we think it will prove of great use for line and screen negatives, especially the latter, as its cutting action is cleaner and more under control than that of cyanide and iodine.

NOTES FROM SAN SALVADOR.

We abstract from a letter written by Mr. F. A. McCarthy, who has recently spent considerable time in San Salvador, a few notes regarding matters of interest to the photographer and process man in that country.

"The printing and publishing business is in full swing, several large daily papers being issued. In the city there are altogether about forty cylinder and seventy-five bed and platen presses, mostly all of American make.

"It is very hard to keep rollers for half-tone or color printing in fit condition, the climate having much to do with their deterioration. The custom is in the wet season to clean them only with benzine, and in the dry season with lye. It is the rule of most of the printing houses to keep on hand several extra sets. My experience has shown me that the simplest solutions are the best, many of the New York formulas for the enamel etching and salting collodions not being practicable here. Much trouble has been experienced in getting a good cotton that would stand the passage down, great difficulty being experienced with the foreign or European chemicals in working under the climatic conditions here prevailing. The best soluble cotton, in my opinion, for this climate is the Climax. It keeps well and does not rot.

"Much annoyance results from the improper shipment of acids and chemicals, many of the carboys arriving broken or wrong way up. Acids and chemicals of this nature, packed in 7-pound bottles, are received without damage as a rule. The desire and disposition of merchants in this section is to use American goods, and if they were shipped in such way as to avoid loss by breakage and leakage, a great point would be gained by the American exporter. The paper dealers seem to understand the matter of packing for export pretty well, but the use of a heavier lumber in the boxing would be of considerable advantage.

"Another matter that is frequently overlooked and a sore disappointment to the consignee, is the consular invoice. It is very important that this consular invoice should be in evidence to cover everything shipped ; otherwise the consignee loses his goods."

PROCESS NOTES.

The forthcoming Exhibition of the Arts and Crafts to be held in Boston, April 5th to 17th, bids fair to be of great interest to process workers, as it is expected that much of the best results of recent experiments in the various fields of illustrative work will be shown. We understand that many examples of process work in color have been promised, and much good should result from such an interchange of ideas as always comes with such an exhibition.

◆

In a comment upon the possibilities of future improvements in three color printing methods and machinery, the *Inland Printer* speaks of the need of a Webb press that will run calendared or coated paper without offset, and of inks that will possess the proper color, transparency and the property of quickly drying, and in reference to this latter quality suggests, that its solution may be found in a method "of printing the second or last color from hot plates with an ink that is only fluid when heated and that will set immediately on being cooled." There seems to be food for thought in this suggestion.

◆

It is announced from Boston that a new stock company has been formed in the process field, which embraces the original Boston Engraving Company, the Blanchard & Watts Engraving Company, and the engraving department of C. J. Peters & Sons. This combination is, in point of reputation at least, a strong one and should succeed.

◆

The craft will sympathize with Messrs. Gutekunst & Company, of Philadelphia, in their recent loss by fire, which, we understand, destroyed a large part of their extensive plant, entailing a severe loss in excess of their insurance.

◆

The new catalogue of materials and supplies needed for the working of a process establishment, just issued by our publishers, will prove a valuable little reference book to all engaged in photo-reproduction, as it shows concisely and well all the paraphernalia requisite, and has also illustrations in half-tone, made with the new Richards' cross-line screen. It will be sent on request.

This little pamphlet, in conjunction with "Anderson's Hand-Book of Instruction," go well together, and one is scarcely complete without the other.

◆

Readers of the Bulletin are reminded that the "International Annual" for 1898 will shortly be in preparation, and that with that volume the "Annual" will round out its tenth year of existence.

It is the purpose of the publishers to make this tenth volume excel in quality all that has gone before, and if anything of special interest comes in the way of our readers, we shall be glad to have notes of it for the annual. Good studies and compositions will also be welcome.

◆

Speaking of Metacarbol, Mr. Eugene H. Horn says: "For negatives, it is the best developer I have ever used, being clean, quick and easy to use, and not a bit fussy."

OUR
Reviewer.
School of Practical Process Engraving

Particular attention is called to the fact that the American Aristotype Company have placed upon the market their pure gold and platinum solutions in 50-cent bottles. Aristo Platino paper is beyond all cavil the best printing-out paper that the photographer has ever had prepared for him, and with the cheaper toning materials its use among amateur photographers will doubtless become universal.

Dear Sirs,—I have tried sample of "Metacarbol" you sent me. I am pleased to add my unqualified endorsement to all that has been said in its favor. It makes the most beautiful and richest looking negatives that I have ever seen. I shall use it exclusively in the future. I heartily recommend it to others.

Yours very truly,
Chas. H. Carroll.

"Photography as a Hobby," by Matthew Surface, published by Percy Lund, Humphries & Co., is a neat, handy little book, giving some reasons for the enthusiasm that governs many of the knights of the camera, and many practical suggestions for their guidance. It is published in their popular photographic series, and is a very readable and entertaining little work.

The Bulletin is accorded a larger circulation than any other photographic publication in this country. With the help of our readers we can still further increase this circulation, and this with mutual benefit. We shall be pleased to receive any hints or assistance of any kind that will help us in making our journal more useful to the general reader.

We have received from Turtle's Studio, Stockton, Kan., an exceedingly dainty and charming study of a child's head. The posing and lighting are exquisite, and we shall try to reproduce it in a subsequent issue. The print is made on Aristo-Platino paper, which, Mr. Turtle writes, he uses almost entirely.

The trade catalogue for 1897, published by W. D. Gatchel & Sons, of Louisville, Ky., is a very pretentious and finely gotten up book of one hundred and fifty pages, containing a very full and complete assortment of all goods in their line. It is well printed, on good paper and a credit to the Southwest.

Halbtonprozess, a practical handbook on half-tone work on copper and zinc. This is a German translation of Verfasser's book, "The Half-Tone Process," by Dr. G. Aarland, and is published by the famous German house, Wilhelm Knapp, Halle a/S., Germany.

Zimmerman Bros., of St. Paul, have issued a catalogue for 1897, that outclasses any of their previous issues. It is of large size, printed on good paper, and with excellent taste shown in the display of the goods mentioned.

"I think your '97 'Annual' far better than any yet published."—Tom Prince, Hancock, Mich.

"Your 'International Annual' is simply superb."—W. S. Lewis, Nashville, Tenn.

"It is a very attractive volume."—R. J. McFee & Co., Cincinnati, O.

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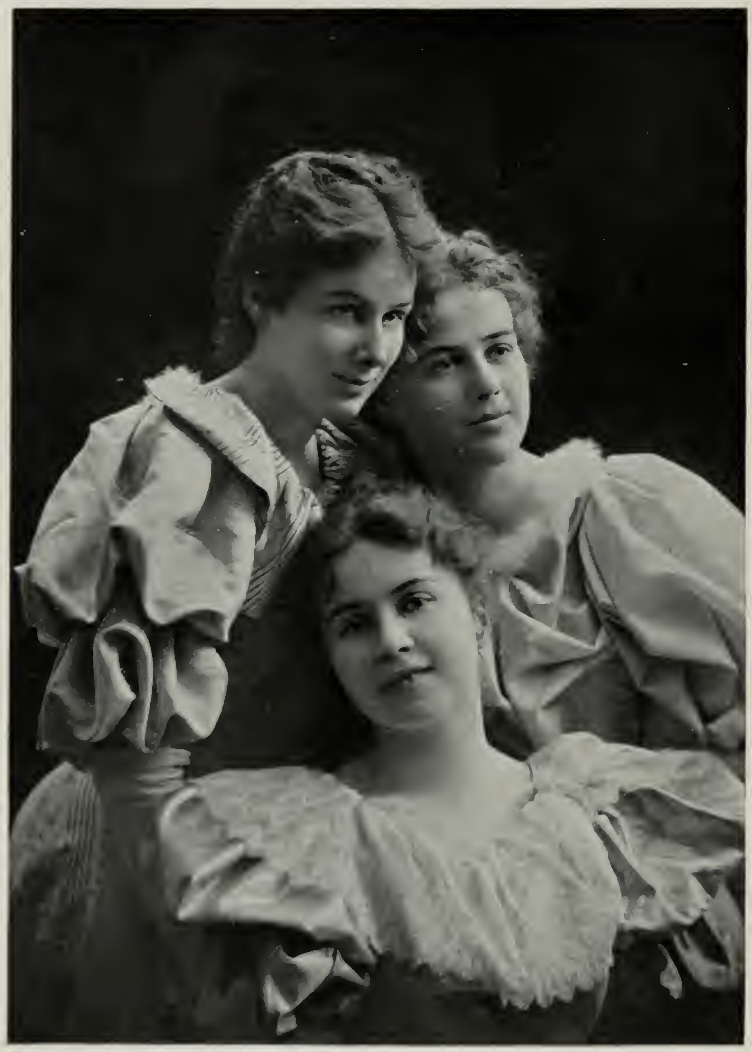

PHOTO BY NEWMAN.

STUDY IN GROUPING.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXVIII. MAY, 1897. NO. 5.

PHOTOGRAPHY IN COLOR.

DURING the more than twenty-seven years of its existence, Anthony's Photographic BULLETIN has been privileged to chronicle a great many important discoveries in the field of photography. It has kept pace with the progress of the art in most cases and has led in many. Its aim has been always conservative in exploiting new discoveries and improvements till they have been proven of thorough practical value to the photographic fraternity, but it has always stood for progress and improvement along every line.

Never before, perhaps, has the BULLETIN been able to make the announcement of anything more important or destined to work greater advance in the field of photography than it now does in bringing before its readers the application of color to the photographic print by purely chemical means and in a commercial manner.

The possibility of rendering objects in the colors of Nature by the aid of photography has long seemed to be almost within reach, but has successfully eluded the grasp of all, until the last few months, and it seems to have been left to M. Villedieu Chassagne, of Paris, to break down the barrier and give to the scientific world, a method by which the colors of Nature may be photographed and made permanent.

As our publishers have secured the American rights for its use, we can promise that it will soon be made available to the profession.

The first public knowledge of M. Chassagne's discovery and invention was contained in a communication from Sir H. Trueman Wood to the *Journal of the Society of Arts* in London, in the early part of this year (January, we think), as follows :

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*"I am anxious to make, through the medium of the Society of Arts *Journal*, at all events a preliminary announcement of a very remarkable process for producing photographs in colors which was brought to my notice the other day. To say that it enables photographs to be produced in natural colors would not, perhaps, be precisely true, since coloring media are employed; but the result of the process is a photograph in the colors of Nature—a faithful reproduction in color of the object photographed—and so, for all practical purposes, it may be said that the long-sought object of photographic research, photography in color, has actually been obtained.

"The inventor is Mons. Villedieu Chassagne, of Paris, who has developed a process originally suggested by Dr. Adrian Dansac. The following is his method: (It must be premised that he keeps secret, at all events for the present, the nature of the four solutions he employs.) A negative is taken on a gelatine plate prepared by treatment with one of his solutions. This is developed and fixed in the ordinary manner. It shows no trace of color. From it a print is taken on glass or paper, the plate or paper being specially prepared by treatment with the same solution. The transparency or the paper print in no way differs to all appearance from an ordinary positive, and shows no trace of color by transmitted or by reflected light. It is then washed over successively with three colored solutions, blue, green and red, and it takes up the appropriate colors in the appropriate parts, these three colors giving, by their various combinations, all varieties of hue. How it is that this power of selective absorption is given to the components of the photographic image (principally, of course, metallic silver) is, it appears to me, the interesting question connected with the process. The action is certainly previously unknown, and it will as certainly repay scientific investigation.

"As I declined to be convinced by mere inspection of the finished results, M. Chassagne was good enough to demonstrate the whole process for my benefit, and by the kindness of Professor Thomson, of King's College, the demonstration was allowed to take place in the laboratory of King's College on two mornings last week. Professor Thomson and Mr. Herbert Jackson, of King's College, were present on both occasions, and Captain Abney on the second. I must not speak for those gentlemen, but I believe they were as much impressed as I was myself by the remarkable nature of the process and its results.

"That such results should be obtained by such a process seemed *à priori* in the highest degree improbable, but obtained they certainly were.

"The photographs taken by ourselves were poor, the light (on the morning of Wednesday, 20th) being extremely bad. Nevertheless, the positives (made by one of ourselves on the following day) showed with perfect distinctness, when treated as above described, the colors of a bunch of flowers I had bought at Covent Garden, on my way to King's College, and of various other test objects.

"Our own experiments were confined to gelatine films, but M. Chassagne treated with complete success some paper positives he had brought from Paris. These looked like ordinary silver prints toned with gold, but I omitted to ask about the toning.

"Further experiments and independent investigation (for which M. Chassagne has kindly promised me the materials) will, no doubt, throw further light on the nature of the process, but I cannot believe that any investigation will throw doubt on its genuine character, for it was carried out under test conditions last week, the sole reservation being the nature of the materials employed.

"I hope that a fuller account of the method may shortly be presented to the Society in the form of a paper, but in the meantime it appeared to me that members of the Society would be interested in having placed before them the first information about so remarkable and promising an invention.

"H. TRUEMAN WOOD."

Since the above letter was made public, much has been said, particularly in the foreign journals, upon this subject, and we quote the opinion of Captain W. de W. Abney, of whom the *British Journal of Photography* says, in reprinting the following letter : "It is the utterance of a cautious man of science who is careful not to say one word either in praise or disparagement of the process that was demonstrated before him":

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* Reprinted from *British Journal of Photography*, February 5, 1897.

*The process of color photography, which I had the pleasure of seeing demonstrated at King's College some ten days ago, through the kindness of Sir H. T. Wood, is a very remarkable one. I went as a skeptic. The process may be described in a very few lines. In the first place a negative is taken on a gelatine plate, which has been specially prepared. The plate is developed and fixed in the ordinary way, and the image appears of the same character as if taken on a good density-giving plate. A transparency (a positive) is next taken on a similar plate from this negative, or a silver print made on specially prepared albumenized paper, on either of which the color process is worked. The coloring is of a very simple nature. There are three dyes—a crimson red, a grass-green, and a very good blue, all in solution, and mixed with some other ingredients besides water. There is also what we may call a mordant in the shape of a colorless liquid, containing, I should say, albumen and salt.

This last liquid is brushed copiously over the face of the positive (or the silver print), and the blue dye applied a little at a time. If the light be good (and it was† stated that the coloring must take place in good daylight), the blue dye rapidly takes hold of those portions of the surface which represent in monochrome what are blues in the original. For instance, a china vase will take the blue tint, and the face or hands a faint amount of the same color. The green dye is applied in the same manner, and the greens in the original make their appearance in the positive, and so with the red. Finally the print or positive presents a picture in colors, underlying which is the dark brown silver image. It appears as if the image took up selectively these three colors ; but why it takes them up it is hard to see. I have by me a portrait done in the manner described, and the negative has evidently been retouched with the pencil. It is difficult to understand why a pencil mark should be the cause of selective absorption of the colors, or that a special plate should be necessary. That the success of the process does not depend upon the inventor's manipulation is quite evident, for negatives were taken by Sir H. T. Wood, quite independently of him, but, of course, on prepared plates given him for the purpose, and from these he made positives. These last, when treated with the coloring matter, gave the correct colors of the original. Still I am somewhat skeptical—I believe it is my failing to be so—and I shall not be satisfied till I get the plates that have been promised me by the inventor (M. Chassagne), and taken negatives of certain test objects which will be unknown to the inventor. If he can reproduce their colors, it will have to be without any reference to the amounts of silver which ordinarily indicates the color in the original, for in the negatives sent, every color will be represented by approximately an equal density. Some few years ago a powder process was seen by Mr. C. V. Boys, in which three colored powders selectively adhered to the surface of paper. The paper was prepared with some glutinous substance and bichromate of potash, which remained more or less tacky, according to the amount of exposure to light it received. These three powders, a red, a green and a blue, I believe, if applied in a certain order, adhered to the print, and gave approximately correct results of color, though no special negative was required. Whether this new process now described depends on any similar grounds, it is hard to say at present.

The point that strikes me in the latest process is that it is only from a specially prepared negative that a print suitable for coloring can be made. Were it the negative which took up the color, one might understand the matter better. To me at present the process, as stated, is a mystery ; but if it does all that it is claimed for it, it must be a great success, and the theory of it will have to be investigated in a thoroughly scientific manner. At present the details are a secret; but I am given to understand that the seal of secrecy will be withdrawn before long, as a patent is applied for. We shall then be able to ascertain on what principles the process is worked.

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* Reprinted from *British Journal of Photography*, February 12, 1897.

† We believe this to have been a misconception on the part of Captain Abney, and that the reference to good daylight was intended to apply to the exposure of the original negative, which should be brilliant and well lighted.—[EDITORS.]

Captain W. de W. Abney.

We would add to the above that we have ourselves seen and carefully examined a large number of prints made by this process, and can bear witness to the fact that they are wonderfully accurate and effective. We believe that this achievement of M. Chassagne marks a distinct era in photography.

THEORETICAL ASPECTS OF RÖNTGEN RAYS.

"According to *Nature*, Dr. Julius Precht, of Heidelberg, has just published an important thesis on the cathodic rays, Röntgen rays, and other radiations emanating from vacuum tubes. Besides the rays capable of being deflected by a magnet, according to the law of Biot and Savart (which the author has verified by photography), Röntgen's, Goldstein's, and Lenard's rays are shown to be distinguishable by their chemical and photographic effects. Dr. Precht considers that a portion of the radiation from a discharged tube is not a wave motion, because the absorption of the rays in passing through paper varies with the time of duration of the radiation. Interference phenomena were obtained by direct and reflected Röntgen rays (a fact which will surprise many, owing to the general belief that Röntgen rays can be neither reflected nor refracted). Calculating from these phenomena, their wave lengths were found to vary between 370 x 10^{6} to 830 x 10^{6} millimeters. From the fact that transverse light waves of this length cannot pass through black paper, Dr. Precht is inclined to accept the theory of longitudinal waves. By interference experiments such as these, wave-lengths were obtained from two or four times as great as those found by Voller in observing the diffraction produced through a slit."—*The British Journal of Photography.*

It is expected that demonstrations of the new "Radiotint" photography will be possible at the convention of the Photographers' Association of America, July 12th–17th, and in this event will be found an additional attraction to all interested in photography.

Bring your ladies with you and help to make the convention of 1897 the biggest and best in its history—a Red Letter Convention in every sense of the word.

All copy for June issue must be in our hands by or before May 15th.

Items of Interest

At the Virginia State Convention, recently held in Richmond, Va., the gold medal in Class B was awarded to Mr. R. T. Phillips, of Alexandria, for work made on Climax plates, and printed on Aristo Platino paper. Mr. Phillips is an enthusiast on the subject of Climax plates.

With the June number of the Bulletin will appear full particulars regarding excursion rates, special Bulletin train, hotel arrangements, etc., for the Red Letter Convention of the Photographers' Association of America at Celeron, July 12th–17th. We expect to have the biggest and the best party on our train to the Convention, the biggest and best kind of accommodations while there, and the most superlatively big and good time in convention. Don't make any plans until you see what the Bulletin has to offer in this connection.

One use to which X-ray photography may be applied to the advantage of the archæologist will be in determining the composition of mummified remains, which it is claimed are now in many cases manufactured by skilled workmen and palmed off on the eager enthusiast as relics of antiquity. The application of the X rays speedily determines whether these remains are manufactured or are *bona fide*.

It is now generally conceded that the X ray is injurious in a greater or less degree to the human skin and hair. This fact should be borne in mind where experiments are carried on by any other than experienced workers with this light.

Mr. J. A. French, of Keene, N. H., enjoys the distinction of having lately made his first portrait of a person over one hundred years of age. The picture in question was made on the one hundred and first birthday of the sitter, Mrs. Roena Shelley, who, by the way, did not go to the studio, but to whom the studio was taken, and shows a capital handling of what must have been a very difficult subject under conditions entirely foreign to studio work. Mr. French has himself just celebrated his fortieth anniversary as a photographer, having begun his photographic work in 1857.

THE question quite frequently comes from beginners: "Why does not a lens which covers a plate, say, 4 x 5, sharp to the edges, equally well cut a plate 5 x 5?"

The explanation of this is that, the field covered by the lens being circular, a parallelogram can be taken from the circle which will have a greater length in one direction than either side of a square cut from the same circle.

◆

THE Ministry of Public Instruction of Prussia is said to have appropriated 50,000 marks, equivalent to $10,000, to assist certain public institutions and private persons toward obtaining the necessary apparatus for investigations with the Röntgen rays. A portion of this amount is to be devoted to the purchase of instruments and the remainder to go toward defraying the cost of working.

◆

MR. W. E. GRAY, in a recent discussion before the Royal Photographic Society of London, speaking of the possibilities of out-of-door architectural photography under unfavorable conditions of lighting, said that "he had found that the use of an abnormally deep color screen, increasing the exposure from ten to twelve times with an isochromatic plate, would enable satisfactory negatives to be obtained during misty or foggy weather, which would otherwise render such work impossible."

◆

PRINTS may be mounted in optical contact on glass in the following manner. Two or 3 ounces of gelatine are soaked in cold water until saturated, after which all excess of water is poured off and the gelatine dissolved in 8 ounces of water brought to boiling point. This dissolved gelatine is then filtered into a dish contained in a water-bath and kept at about 100 degrees Fahr., and the print immersed in it and squeegeed face down on a clean piece of glass. This will be found a very good way of treating many subjects, and may, if desired, be carried farther by the addition of ribbon binding or regular passe-partout edge.

◆

PROFESSOR E. E. BARNARD, late of Lick Observatory, Cal., who has achieved such success in his photo-astronomical researches, has been honored with the gold medal of the Royal Astronomical Society for his discovery of the fifth satellite of Jupiter. Professor Barnard has the esteem and admiration of the scientific world as well.

◆

A NEW magazine, *L'Image*, has lately been established in Paris, differing from any other published to-day in the fact that it is illustrated exclusively by wood engravings. Its object is to encourage the art of wood engraving, as the management believe that this method is the only suitable and proper method for illustrating art works. It will be interesting to note how long it continues to thrive without calling in some way or another on photography to aid it.

Dr. Nicola Tesla, in a lecture before the New York Academy of Sciences on April 6th, announced that he had discovered a new source of rays in the electric arc, by which more powerful rays and finer definition may be obtained than by any method previously known, and stated that its application was possible, not only to the Röntgen and Lenard rays, but to lighting and to other practical purposes. Dr. Tesla claimed also to have demonstrated that the Röntgen rays can be deflected by a magnet, and that they are identical with the Lenard rays, described first in 1891.

* * *

Dr. J. Mount Blyer is said to have invented an instrument for the photographing sound vibrations in the atmosphere. This instrument consists of a cone, over the large end of which is stretched a diaphragm of thin rubber. On this, and in its exact center, is placed a thin layer of powder, which is disturbed by the vibrations of the diaphragm, answering to the human voice at the small end of the cone. The lines formed in the powder are photographed on a rapidly moving film, and the records obtained show very interesting results.

* * *

A writer in the *Amateur Photographer* says, with reference to photographing trees that are more or less disturbed by the wind, that in cases where long exposures are required he makes two exposures, giving as many seconds as possible after they become still, then capping his lens when movement recommences and finishing the exposure after they are again comparatively quiet. This covering and opening of the lens must be done with care in order that the camera may not be moved.

* * *

It will be well for those who work by incandescent electric light to bear in mind the fact that it is not safe to improvise screens or shades from paper or other inflammable material, as has often been done, for, while such screens do not ignite at once on being attached, they are very liable to do so after being for a short time in contact with it.

* * *

A suggestion comes to us from one of our subscribers to the effect that the various formulas published in the Bulletin, giving weights and measures in foreign terms, would be more appreciated and oftener experimented with if the same were translated into American measures and equivalents. It will, hereafter, be the pleasure of the Bulletin to give in connection with these formulas, in all cases possible, the equivalents, and we hope in this way to render them of greater value and service.

* * *

We note with regret the death of Mr. M. Carey Lea, who died on the 15th of March last. Mr. Lea's name is one well known in photographic circles in connection with his "Manual of Photography," his correspondence in various journals, and his keen enthusiasm in photographic advancement. He was an earnest worker, and one who was thoroughly in love with his art.

COLOR PRINTS BY CHASSAGNE'S NEW "RADIOTINT" PHOTOGRAPHY.

MR. R. A. ANTHONY, of our publishers, who has just returned from Paris and London, whither he went to secure for the Americas the new "Radiotint" printing method in photography described in our leading article, has brought with him from M. Chassagne's laboratory quite a collection of photographs colored by the new method, which are to be seen at the office of our publishers. These photographs we believe will be conceded by all to be in every way remarkable and to open up a new field of photography hitherto quite impossible. One of these prints was developed by Mr. Anthony himself in twenty-five minutes, and shows conclusively what may be done by one who is entirely unfamiliar with practical photographic manipulation. Another of these prints, a portrait of the Czar of Russia, shows very remarkably the color and effect of real life, the flesh tints being particularly good, and the drapery perfect, both in color and tone rendering. A landscape, rich in brilliant lighting and strong in deep shadows, with all the various shades of green in the foliage, intermediate tones and reflections in the water, is exquisite, and the collection is well worth the effort required to view it.

Mr. Anthony tells us that materials for the working of this process will be available about July 1st of this year, and that the cost of the same will be within the reach of all; broadly speaking, 10 cents per print being the outside limit, exclusive of the extra cost of the specially prepared dry plates, which will be somewhat higher than the ordinary plates, and in this connection a very important factor is, that it is not necessary to print a large edition in order to bring the cost per print to this figure, as an outlay of probably $5 in the beginning will be sufficient to produce fifty prints or more, and they may all be made from one negative, or may be divided between any number, if desired.

Our publishers desire to invite all interested in this new application of photography to visit their office and examine for themselves the results obtained, feeling confident that an examination will demonstrate to the most skeptical the fact that at last has been achieved a practical method of reproducing the colors of Nature by purely photographic and chemical means, and at a commercial price.

❧

"THERE have been several beautiful displays of Aristo Platino photographs made by prominent Chicago photographers lately at the entrance to their studios. These displays are attractive, in the extreme, for the reason that they are entirely different from anything heretofore seen in this district. Olive-black tones are made, and the pictures mounted on plain cards of good thickness; they are then beveled close up to the edge of the print, showing no margin of cardmount. These beautiful pictures are placed in the show cases, upon pure black backgrounds. The backgrounds for these show cases are produced by covering a board of proper size with unbleached muslin, the surface of which is calcimined with a color made of ivory black, water and a little glue. The effect of these displays is the most striking imaginable, and those who adopt the same will certainly be surprised and pleased with the effect."—*The Indicator.*

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

Red Letter Convention—July 12–17, 1897.

At the regular meeting of the Executive Committee the following rules and regulations were adopted, prizes announced and committees appointed.

No. 1. *Grand Portrait Prize.*—The Grand Portrait Prize will be a life membership in the Photographers' Association of America, handsomely engrossed and properly signed by the officers.

No. 2. *Grand Genre Prize.*—On motion, $75 to be laid aside for the purchase of a Grand Genre Prize.

No. 3. *Genre Class.*—Three pictures, 13 inches or larger, on any matt-surface paper, subject to be chosen by the photographer; the title to be appropriately inscribed on each picture. To be framed at the discretion of the exhibitor, with or without glass. One gold medal.

No. 4. *Class A.*—Twelve pictures. Three or more to be 16 inches or larger. One gold medal, first; one silver medal, second; one bronze medal, third, and one diploma, fourth.

No. 5. *Class B.*—Four pictures, 13 inches or larger. One silver medal, first; one bronze medal, second; one diploma, third.

No. 6. *Class C.*—Three combination pictures any size. One silver medal, first; one bronze medal, second; one diploma, third.

No. 7. *Class D.*—A rating competition. Twelve cabinets only. These must be framed in one frame. First, one silver medal; one bronze medal to all receiving twenty-one points or over.

No. 8. *Class E.*—Landscapes, with or without figures. Three pictures, 13 inches or larger. First, one silver medal; second, one bronze medal; third, one diploma.

No. 9. *Class F.*—Interiors. Three pictures, 10 inches or larger. One silver medal, first, and one bronze medal, second.

No. 10. *Class G.*—Commercial photography. Six pictures. Size to be left to the discretion of the photographer. One silver medal, first; one bronze medal, second; one diploma, third.

No. 11. *Class H.*—Best instantaneous pictures. Three pictures, 6 inches or larger of animals, or of objects in motion. One silver medal, first; one bronze medal, second.

No. 12. *Class I.*—For the most tastefully arranged exhibit. One diploma.

No. 13. *Class K.*—Foreign exhibit. Best collection of photographs, any size, framed or unframed, to be delivered to the Association free of charge. One gold medal, first; one silver medal, second; one bronze medal, third; one diploma, fourth.

Appointment of Judges.

1. Three judges to be appointed for each division of the Executive Committee and their identity to remain unknown until after the awards are made.

2. Three judges to be appointed for the awarding of the grand genre, the grand portrait, the foreign, and most tastefully arranged exhibit, by the Executive Committee.

Markings.

Genre Class.—First, illustration; second, originality; third, photographic results.

All Portrait Classes, A, B and D.—First, posing; second, lighting, and third, chemical effect.

Class C.—First, originality; second, composition; third, general effect.

Class E.—First pictorial effect; second, chemical effect.

Class F.—First, chemical effect; second, general effect.

Class G.—First, chemical effect; second, general effect.

Class H.—First, chemical effect; second, general effect.

Class K.—First, posing; second, lighting; third, chemical effect.

The President appointed the following committees:

Committee on Instruction	C. M. Hayes,	*Chairman.*
Committee on Medals and Buttons	W. G. Thuss,	"
Committee on Grand Prize	G. W. Varney,	"
Committee on Entertainment	J. Will Kellmer,	"
Committee on Printing and Stationery	A. L. Bowersox,	"
Committee on Foreign Photography	J. Ed. Rösch,	"

Rules and Regulations.

1. All competitors must be members of the Association.

2. Exhibitors cannot compete in more than one of the following classes: A, B or D. All photographs for Association prizes must be made from negatives taken since the last Convention.

3. When one dimension of picture is given, it applies to the extreme length or breadth of pictures in all cases. This rule applies to the size of the print and not the mount.

4. Should any exhibitor or exhibitors use his or their influence in any way directly or indirectly with the judges during their term of office in favor of any exhibits, it shall be the duty of the judges to strike their exhibit or exhibits from the list. All exhibits must be framed, with or without glass. The Committee suggest a 1-inch oak frame.

5. Ten marks to be the highest given for any 1 point, consequently 30 points is the highest that can be given to any one picture.

6. All exhibits must be delivered in Jamestown, N. Y., in care of the Photographers' Association of America by July 10th.

7. Application for space for exhibits in the art department to close positively July 6th. No space will be allotted after that day. Application for space in this department must be made to W. G. Thuss, Second Vice-President, Nashville, Tenn.

8. All exhibits of pictures must be addressed to J. Will Kellmer, First Vice-President, Photographers' Association of America, Jamestown, N. Y., and all charges prepaid.

9. Exhibits for dealers' and manufacturers' department to be shipped to A. L. Bowersox, Secretary Photographers' Association of America, Jamestown, N. Y., by July 12th, charges prepaid, and must be placed in position by 10 A. M., July 12th.

10. Have your box covers screwed instead of nailed. Mark your home address on under side of cover for return of pictures. Put screw-eyes and picture wire for hanging, in box.

11. All boxes and packages will be accepted at any time previous to July 12th, so that photographers need not feel any uncertainty about the safety of their goods. No exhibits will be allowed to be removed from the hall until after the close of the Convention.

12. No manufacturer, dealer or other representative shall do business on the Convention floor, unless he or they take floor space or desk-room.

13. All exhibits must be framed, having a card on the front, giving name of exhibitor, class, city or town, county, and State.

14. All these rules and regulations will be strictly adhered to.

15. Employees to gain admission on employees' fees must present an official application (which can be secured from the Secretary) signed by a proprietor of a studio who is a member of the Photographers' Association of America.

Markings to be Considered in all Classes.

Genre Class.—First, illustrative; second, originality; third, photographic results.

All Portrait Classes.—First, posing; second, lighting; third, chemical effect.

Classes E, F, G and H.—First, pictorial effect; second, chemical effect.

Class I.—General effect.

Class K.—First, posing; second, lighting; third, chemical effect.

Permanent Exhibit of Photographers' Association of America.

The exhibits winning the Grand Prize in the Genre and A Classes are to become the property of the Association, for the purpose of forming a permanent exhibit.

THE NEW PHOTOGRAPHY; OR, PHOTOGRAPHING THE INVISIBLE.*

By John Carbutt.

The following lecture, delivered before the Photographic Society of Philadelphia, March 10, 1897, was not received in time for use in the April number of the Bulletin, but is too valuable to be omitted.—[Ed.]

"LADIES, Gentlemen, and Members:

The subject for your consideration this evening is the 'New Photography'; or, 'Photographing the Invisible'; and before entering on the main part of my subject, I will briefly trace the history of photography, and what it has accomplished in a little over the latter half of the nineteenth century just closing. While most of the earlier processes of photography are of foreign origin, Americans have been the most prompt to adopt and improve on those methods; and I claim for Philadelphia and her citizens the distinction of having fostered and encouraged the beautiful art of photography more than any other city in the Union. The daguerreotype, named after the discoverer, Daguerre, a citizen of France, was first announced to the world in 1839. The next was the talbotype, the discovery of Henry Fox Talbot, of England, in 1841, afterwards called the calotype, and was used mainly in taking landscape views. Next came the albumen process. Whipple, of Boston, and the Langenheim Brothers, of this city, were the first to adopt the process in America; that is, of making negatives on glass, and transparencies for the stereoscope and magic lantern. The Langenheim Brothers bought the American patent for the Talbot process, and improved upon it by substituting glass for paper, using albumen as the vehicle to hold the sensitive salts, and called the process 'hyalotype.' They were the first to make transparencies on glass for the stereoscope and magic lantern. Robert Hunt, in an article in the *Art Journal* of April 1, 1851, on 'Improvements in Photography,' says: 'We have before us a series of these magic lantern slides, the hyalotypes, and we feel bound to declare that their delicacy and perfection of the details cannot be overestimated.' M. Le Gray was the first to suggest the use of collodion in photography, but Mr. Scott Archer, of London, was the first to successfully apply it, and in 1851 published a treatise on the making of glass positives. In America, where the process was speedily adopted, they were called ambrotypes. The same chemical process was used in the making of negatives, and continued in use until the advent of the gelatine bromide process. Dr. R. L. Maddox, of London, in 1871, substituted a solution of gelatine for collodion to hold the sensitive salts of silver, gave his formula to the world, and the process was speedily taken up by numerous skilled amateurs in England, and by 1876 the professional photographers of England had, owing to the greater sensitiveness of the gelatine plate, begun to use it in their practice. The first to make a gelatine dry plate in this country, that I have any knowledge of, was Mr. Geo. W. Hewitt, a skilled amateur of this city and member of this Society, and the first dry plate factory in America was established in this city by

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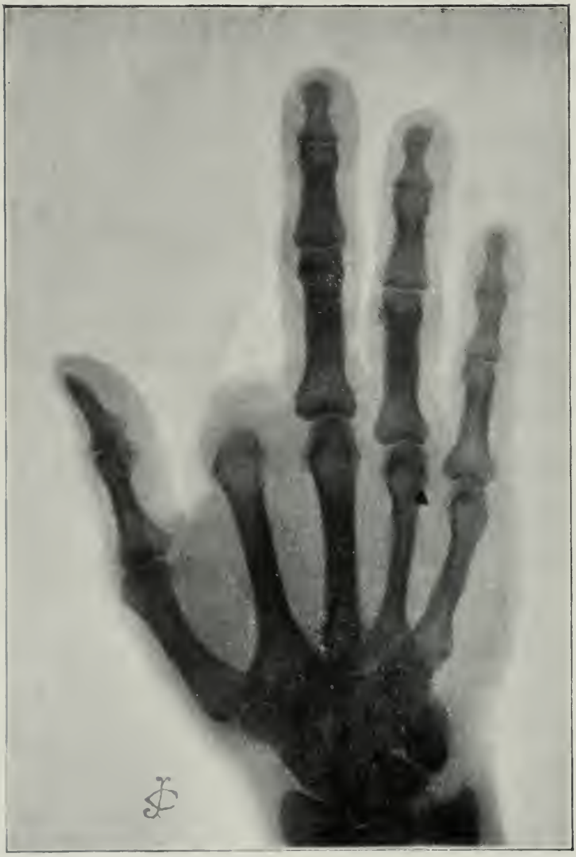
* Read before the Photographic Society of Philadelphia, March 10, 1897.



RADIOGRAPH OF HAND.

Showing Amputation of Finger and Fragment of Cartridge-Shell Embedded for Eighteen Years, but Just Discovered by X Rays.

Negative made before the members of the Photo. Soc. of Phila., March 10, 1897, by John Carbutt.
90 seconds' Exposure on Carbutt's X-Ray Plate.

myself in 1878, and by 1880 the dry plate began to displace the wet collodion process, which has long since ceased to be used in portraiture and landscape photography. In 1885 I introduced the orthochromatic dry plate, the use of which, with suitable color screens, has led to the reproduction in colors of objects in art and Nature by the three-color process of printing, with remarkable fidelity. Most of you are, of course, familiar with the exquisite and truthful representation of Nature by Mr. F. E. Ives, a member of this Society. I might continue to the end of the time allotted me in relating photographic methods of the past and present, many of which I have to pass unnoticed. It is but a little over a year since Professor Röntgen gave to the world his great discovery of the X rays, by which it is now possible to photograph the invisible anatomy of the human body, and on the 27th of January of last year the first radiograph was taken in America by Professor Arthur W. Wright, of Yale University, one day after he had read of the Röntgen discovery. In passing thus to the practical consideration of the X ray, I will not attempt to enter into a description of the scientific aspect of the Röntgen phenomena, that has already been so fully and ably described by Professor Houston in his lecture at the Franklin Institute, October 30, 1896, and by Professor Arthur W. Goodspeed, of the University of Pennsylvania, before this Society, who early in February of last year made investigation of the Röntgen phenomena, as did also Professor Pupin, of Columbia College, and Professor W. F. Magie, of Princeton, and others. I at once took an interest in the discovery, and conceived the idea that a specially prepared plate would be required to suit the mysterious X rays, and on February 11th of last year, at the Maternity Hospital, Professor Magie exposed the first X-ray plate, the case being that of a burned hand with anchylosis of the fingers, one of Dr. W. W. Keen's patients, and the exposure given was twenty minutes. The negative showed full detail of bone structure of the hand. On the same day two of the same kind of plates were exposed by Professor Goodspeed, at the Physical Laboratory of the University, on objects, time of exposure, twenty-one and thirty minutes respectively, and both proved to be fully exposed; previously, exposures to the X rays had ranged from sixty to one hundred and twenty minutes. With improved apparatus and further improvements in the X-ray plates, exposures now range from a few seconds to thirty to sixty minutes, depending on the thickness of the part of the body to be radiographed. I will now make an exposure on one of my X-ray plates, simply enclosed in a double envelope. This allows of the object to be radiographed, and being close to the sensitive plate, the exposure will be ninety seconds, with lower side of tube 12 inches from the plate. I will now ask the President to let me radiograph his hand—the one lacking a finger, which my son will develop, and which later can be seen by you. As confirmation of my previous assertion that Philadelphia leads in the application of any new improvement in or use of photography, I will quote from a work on X rays by Edward P. Thompson, M. E. E. E., page 178, where he says: "In the race to excel in this new art, no one, to the author's knowledge, has surpassed Professor Goodspeed, of the University of Pennsylvania, considered jointly from the standpoint of priority, superiority, quantity and variety." Of that you had ocular evidence last fall at the lecture given here, and profusely illustrated by Professor Goodspeed. The hospitals of Philadelphia and other cities are rapidly installing X-ray apparatus, and the surgeons in charge are making most valuable use of the Röntgen rays in diagnosing cases of fractured bones and locating foreign substances, and there are instances where the use of the X rays has been the means of saving life, notably in two cases in this city, where foreign substances had been swallowed and lodged in the œsophagus. In the first case a little girl of five years swallowed a jackstone, and the location of same was revealed by a radiograph taken by Professor Goodspeed, and the jackstone was successfully removed by Dr. W. H. White, with the speedy recovery of the patient. The second, and most recent, was the location of a small iron staple in a man's throat, that had formed one of the ingredients of a mince pie he had partaken of. Radiographed by Dr. Max Stern, of the Polyclinic Hospital, and successfully removed by Dr. Bliss. In orthopædic surgery, the use of the X-ray apparatus is of great value in diagnosing the malformation of the bones. The following hospitals in Philadelphia have X-ray installation: The Polyclinic, in charge of Dr. Max J. Stern; the Jefferson Medical College, in charge of Dr. M. W. Coplin; the Pepper Clinical Laboratory, in charge of Dr. Charles L. Leonard; the Medico-Chirurgical, in charge of Dr. E. La Place, and the Episcopal Hospital. The apparatus for the successful production of radiograph consists of, first, an induction coil; second, a Crookes tube; third, an electric current, which may be obtained from a dip battery having six or more cells coupled in series, or from a 110-volt incandescent current, controlled by a rheostat, or third, and preferably, a storage battery. This outfit I have here is of the modern type, the induction coil being capable of giving an 8-inch spark in air and excited by the current from two chloride accumulator storage batteries of 16 volts; the large Leyden jar is used as a safety valve, by allowing one of the conducting wires from the coil to pass the current through it, and make a small spark gap, so that, in case of a sudden increase of the current, the jar would act as a condenser and prevent injury to the Crookes tube. The condenser of this coil has large capacity, is divided into ten divisions, controlled by a fan-shaped contact, and was made to order for me in New York. It has an approved vibrator that allows the use of a tube of low vacuum to one requiring fully a 7-inch spark to force the current through, and the vibration can be adjusted to give a moderately fast or very fast make-and-break contact. Of the Crookes tubes we no longer have to look to foreign makers for a supply, as again American genius shows its capabilities in supplying quickly, and of the best, there being seven or more makers of Crookes tubes in the United States. I have here samples of several makes, each differing in construction, and all capable of generating a good quality of X rays. The Crookes tube, I may here say, is the most essential part of the outfit, and requires the greatest care in its use. In procuring a new tube I advise that its vacuum should be for not more than half the spark capacity of the coil it is to be used upon. For instance, if you are using a 6-inch spark coil, the tube should readily fluoresce with a three or three and a half-inch spark, for after being used a few times it will be noticed that the vacuum has gone higher and more tension is required on the vibrator, to produce the full amount of fluorescence and good X rays. There are various devices added to the Crookes tubes for the purpose of lowering the vacuum when it gets too high for the current to flow through the tube readily. Of these I have here three examples. One has an auxiliary tube containing at the end a substance that when gently warmed gives off vapor that lowers the vacuum and enables the current to again pass at the voltage the coil is supposed to be used at. Another has a small incandescent lamp enclosed in the stem, which, when connected to a 4 or 6 volt battery and allowed to burn for a minute or two, will lower the vacuum when too high, and another has also an auxiliary tube containing a chemical salt that, when heated, lowers the vacuum. A tube without these adjuncts for lowering the vacuum may for a long time be made to give off good X rays by carefully heating the cathode end with a spirit or gas flame. In using the tube it is well not to let the anode become heated beyond a small, cherry red space not exceeding a quarter of an inch, for it is the heating of the anode that so quickly raises the vacuum, and the distance at which the lower side of the tube should be from the sensitve plate very materially affects the time of exposure and the result. Eight inches to 10 or 12 is near enough for a hand, the shorter for a small hand, and the latter for hand and wrist or forearm, bearing in mind that the exposure must be increased as the square of the distance. For instance, an exposure with the tube 6 inches from the plate, we will give, say, thirty seconds; at 12 inches, one hundred and twenty seconds ; at 18 inches, two hundred and seventy seconds would be about right. It is with diffidence that I speak of the photographic plate to be used for X-ray work as I am personally and commercially interested in its production; therefore, I will speak generally of what I consider, after much study and experience, the dry plate suited to the use in radiography. It should be of medium sensitiveness, have a good body of emulsion be capable of absorbing the X rays, thereby giving more detail and perspective to the bones. For developer, one capable of searching out detail and at the same time capable of giving density, and not apt to stain the plate by long development. Pyro I would exclude for this class of work, eikonogen with hydroquinone mixed is good, or used separately. I may say, however, that the developer most generally used with my X-ray plates is the J. C. tabloids I put up. The plates should during development be covered over, and development continued for six to ten minutes, until, if possible, a trace of the image can be seen on the back. After developing and well rinsing off, the plate should remain in the fixing bath for not less than twenty minutes, and all solutions should not be used below 60 degrees Fahr. I will now have shown on the screen a few examples of radiography, the first of which is that of an infant four days old, taken after death, showing the lack of ossification of the joints; 2 and 3, the mummy hand and foot of an Egyptian princess, radiographed 3,500 years after death; 4, a rat after being killed by a terrier; 5, a crab; 6, a conger eel; 7, quail; 8, hand of lady musician; 9, interior dislocation of radius; 10, comminuted fracture of both bones of forearm; 11, tumor on hand; 12, an artificial spectrum made up of strips of colored screens, such as I make for use in photographing paintings. I show this slide to demonstrate that while the colors are transmitted and shown in all their brilliancy on the screen by the light received from the same source that energizes the induction coil and produces the X rays, when I place the same artificial spectrum behind the fluorescent screen, you will observe that the X rays absorb all the colors of the spectrum, and no color sensation reaches the eye any more than the piece of plain glass above the artificial spectrum. This I believe to be the first time such phenomena have been demonstrated in public, and until Dr. Röntgen or another able scientist proves otherwise I shall continue to believe that the X rays are the ultra-ultra-violet. This screen I prepared, to show to the audience the hand and arm, and will now have the lights extinguished the better to observe the effect, with which I close my lecture, and thank you for your patient attention.

PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

BY request of the Treasurer we publish the following extract from the Constitution and communication regarding the same: Article II, Section 7, reads as follows:

"'The annual dues become payable in January of each year; any member failing to pay the same prior to the adjournment of the annual meeting shall forfeit his right to membership, and can only be reinstated on payment of a new initiation fee as in case of new members.'

"It is hardly necessary to say that prompt response will save delay at the Convention, and greatly assist the Treasurer in his duties during the coming year.

"Heavy exchange now being charged on all checks, remittances must be made by money order, postal note, express order, registered letter or draft on Chicago.

"Respectfully,
"GEORGE W. VARNEY,
"*Treasurer*,
"3937 Drexel Boulevard."

All copy for June issue must be in our hands by or before May 15th.

FOURTH ANNUAL CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF MISSOURI.

Pertle Springs, August 10, 11, 12, 1897.

List of Prizes.

Grand Prize.—Three pictures, 15 x 19 inches or larger. Three pictures, Paris Panels, to 13 inches. Six cabinets; portraits exclusively. Grand Prize, Bronze Figure.

Class A.—Six pictures, 10 x 12 inches or larger; twelve cabinets; portraits exclusively. First, gold medal; second, silver medal; third, diploma.

Class B.—Six Paris Panels, to 10 x 12 inches; twelve cabinets; portraits exclusively. First, gold medal; second, silver medal; third, diploma.

Class C.—Eighteen cabinets only. First, gold medal; second, silver medal; third, diploma.

Class D.—Twelve pictures; cabinets or larger. Competitors in Class D must be from towns of 10,000 or less. First, gold medal; second, silver medal; third, diploma.

Class E.—Twelve pictures; cabinets or larger. Competitors in Class E must be from towns of 5,000 or less. First, gold medal; second, silver medal; third, diploma.

Class F.—Ten pictures; interior or exterior, 7 inches or larger. First, silver medal; second, diploma.

Class G.—Employees' Class. Three cabinets from negatives unretouched, and three cabinets from same negatives retouched. The negatives must be exhibited with the pictures. First, silver medal; second, diploma.

Rules and Regulations.

1. All competitors must be members of the Association and in good standing.
2. Competitors can compete only in one class.
3. Cross off the classes you do not enter in.
4. Any paper can be used in all classes.
5. All photographs for prizes must be made from negatives taken since August 13, 1896.
6. Pictures may be framed without glass, and the frame shall not be heavier than 1 inch.
7. When one dimension of picture is given, it applies to the length or breadth in all classes (not the mount).
8. Rating on all classes excepting *F* and *G*, to consist of the following points: Ten for lighting, ten for posing, ten for chemical effect, ten for retouching, and ten for printing.
9. All photos must be on unprinted cards, with a private mark on each photo to correspond with exhibitors' private mark on this application.
10. Three judges, who are not exhibitors, will be elected by the Convention to judge the entire exhibit.
11. Diplomas will be awarded to all exhibitors who receive thirty points out of the possible fifty.
12. Have your box screwed instead of nailed, with your home address on the under side of cover, for the return of pictures. Inclose screw eyes and cord.
13. Application for space for exhibits must be made before August 5, 1897, to A. S. Robertson, Secretary, St. Louis, 3424 Olive street.
14. All exhibits must be delivered in Warrensburg by August 7th, addressed to J. G. Stone, Assistant Secretary, Photographers' Association of Missouri. Charges prepaid.
15. Exhibitors must send their pictures, as none will be received and placed day of convention.
16. Exhibitors will not be allowed to remove pictures from hall until close of convention.

THE USE OF COLORED SCREENS.*

By A. D. Pretzl.

In the current number of the *Bulletin de la Société Française*, M. Léon Vidal points out that this question is by no means so well understood as it should be. All orthochromatic plates are more sensitive to blue than the other colors, and therefore a plate which has been sensitized for yellow still gives greater opacity in those parts affected by blue ; and to obviate this defect it is usual to use a yellow screen, not to absorb the whole of the blue, but merely to dampen this down, so that the yellow shall give greater density than the blue ; and according to the saturation of the blue we must use a yellow screen more or less intense.

As a general rule for commercial orthochromatic plates, a screen made with aurantia should not be darker than to require four times the exposure for the same subject with an ordinary plate. For a red and yellow sensitive plate, the same screen will be found the best to use.

M. Vidal lays special stress on the fact that increase of exposure cannot give an orthochromatic effect ; but, with very sensitive plates, it is true that a certain equality in density is obtained for all the colors, but this is from the white light reflected from the surfaces of colored objects. With excessive exposure the blue is rendered as gray, while the yellow and green may attain the desired intensity by the increase of exposure ; but orange, red and vermilion only act very feebly on the sensitive plate.

When we come to the question of three-color printing, the screens must be chosen for plates sensitized in a particular way. And the colors which are to be picked out are : 1, blue and its combinations with the other colors, which must be the object of one negative ; 2, the yellow and green and their combinations, for another negative ; 3, red and its combinations, a third negative.

Supposing we take as a simple example a subject formed of bands of various colors—carmine, violet, blue, green, yellow, red-orange and reds, these bands or strips being in two degrees of saturation, one faint and the other rich in color.

To extract the blues, we ought evidently to use a plate sensitive to blue, and this is not difficult to obtain, as all ordinary plates possess a sensitiveness to blue greater than to any other color.

We ought, at the same time, to use a screen which will absorb all the other colors but blue. Certain workers recommend a violet screen, based on the fact that in the spectroscope violet shows a powerful absorption for yellow, and yet allows the whole of the blue to pass. Unfortunately, however, what applies to the spectroscopic examination does not apply to the action on the sensitive plate ; all the yellow rays are energetically absorbed by the eye, but they do not act on the plate. The use of a violet screen, then, is purely theoretical, and, moreover, useless, except where it may be considered desirable to reduce the sensitiveness of the plate, or rather to increase the exposure. An ordinary slow plate should be correctly exposed to give the impression of the blue.

In photographing the above strips of colors, we shall find the carmine, blue and violet have impressed the plate with about the same intensity ; that the pale yellow has acted less, and the green, yellow and orange have produced no action in the saturated part, and that the pure red has not acted at all in either case.

Passing on to the second negative, that for the yellow, it is evident we must use a plate sensitive to yellow, and we have here the choice of two screens, a yellow or a green. The yellow screen produces the following effect : The strip corresponding to the yellow is more intense than all the others, the blues have their relative values, the dark green has hardly acted, the faint red has produced a feeble action, the dark red has not acted at all.

If one wishes to suppress the action of the red, and to obtain a better rendering of the green, it is advantageous to use a green screen. The result is less action in the carmine, none in the pure red, and the yellow is still stronger than all the others ; the action in the green is sensibly stronger. The green screen cuts out the whole of the red of the spectrum, part of the blue in the region of the violet, and allows to pass the whole of the yellow and green. The yellow screen absorbs the blue and violet partially, and allows all the rest to pass ; there is no trouble, however, with the pure red, which does not act on a plate not sensitized for the same.

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* From *British Journal of Photography*, March 26, 1897.

We now come to the third and last operation, the taking of the yellow and red, and for this it is essential to use a plate sensitive to red and yellow. The screen used should cut out the whole of the blue ; it ought to be a ruby-red, and be chosen spectroscopically, and the whole of the spectrum should be absorbed, except the red and yellow. The blue should be absorbed, so that the red and yellow may act on the plate. An examination of the scale will show that the green, blue and violet have not acted, while the carmine-yellow, red-orange and red have given strips of great density. The red screen increases the duration of exposure from eight to twelve times.

Thus the selection of the three essential colors will be good if one uses :

1. An ordinary plate, without screen, for blue.
2. An isochromatic plate, sensitive to yellow, for yellow and green.
3. An isochromatic plate, sensitive to red, for yellow and red.

Now find the screens to be used for the synthesis of the colors of the original by means of the three negatives obtained by the aid of three-colored lights. Experience with the chromoscope shows that the positive from the blue negative should be illuminated with a sky-blue screen. The statement that a violet screen should be used is, M. Vidal states, erroneous.

The positive corresponding to the yellow and green negative should be illuminated by a yellow screen ; and, finally, the red positive with a reddish orange screen.

If the triad, violet, green and red, suggested by Young, Helmholtz, and Captain Abney, etc., be used, pure white and blue will never be obtained.

M. Ducos du Hauron, indeed, speaks of a violet screen, but he uses the word ultramarine in parenthesis. It may be that the theoretical mixture of two extreme parts of the spectrum and one of the middle of the spectrum produces a complementary series.

From a very large number of trial mixtures of colored lights Vidal comes to the conclusion that pure white and the most brilliant yellow are obtained by the three colors, sky-blue, red-orange and yellow-green.

If the red and the green are mixed by projection, one obtains a beautiful yellow. If this yellow is mixed with blue, a pure white is obtained. If the blue disc is replaced by violet, the result is totally different, being a whitish violet, and, on the other hand, blue is never attained in those parts where it is wanted.

If the violet screen is not wanted for three-color projection, still less should it be used for three-color printing.

The place for the screens may vary according to the apparatus. When it is possible, it is preferable to place them in a frame held some millimeters in front of the plate. For occasional use they may be placed before the lens, but, in the case of three-color printing, the focus may be modified, and the position in front of the plate is the more convenient.

With regard to the above article, I would add that, with the present existing commercial plates, the use of the green screen is certainly to be preferred to the yellow, for, notwithstanding their sensitiveness to yellow, they always show a minimum of sensitizing action in the green. M. Vidal's statement that the green screen absorbs the whole of the red is not quite accurate so far as my experience goes, for I have not yet found any green dye or glass which does not allow a narrow band of red in the neighborhood of A in the spectrum to pass; but this is of little consequence, as no plates are sensitive at this point.

Ducos du Hauron, in his new work, *La Triplice Photographique des Couleurs*, suggests for the yellow screen a mixture of:

* Picric acid	0.60	gram
Gelatine	7.0	grams
Glycerine	0.5	gram
Distilled water	50.0	cubic centimeters

the above quantity to be coated on a plate 18 x 24 centimeters, or 432 square centimeters.†

M. Vidal's statement as to the color of the screens for projection is, according to my experience, correct, for, with a red, green and violet, as has hitherto been used, I have never been able to make a pure white, nor have I seen one made, the excuse generally being that the light varies.

With regard to the position of the screen, the best place is undoubtedly in front of the light, so that the object is illuminated by colored light; for, supposing we take strips of red, yellow and blue, and illuminate them by white light, it is a well-known fact that they will reflect a considerable quantity of white light, and that a deeper screen must be used when near the lens to absorb this white light; whereas, if we illuminate the strips, let us say, with orange-red light, it is obvious that the blue cannot reflect any white light, for none reaches it, and this is also the case when using a green screen or a violet, when the red and yellow cannot obviously reflect light which does not fall upon them.

With regard to the use of the violet, I should like to point out that, theoretically, in three-color printing the perfect negative for the printing surface in yellow should, if we were reproducing the spectrum, allow the blue, violet and red to act in equal value, and show less action in the orange, none in the yellow, and a rising intensity in the green; and this can only be obtained by using a violet screen. If a violet screen is not used, and merely a slow ordinary plate, it is obvious that we shall get no action in the red, no action in the yellow, and but little in the green; consequently our printing surface would give yellow in these parts, and in the case of pure red this would obviously be wrong. It has, however, been pointed out by M. Vidal that rarely do we in Nature get a pure red; and this difficulty may be got over by using a carmine ink, the addition of yellow to which will render satisfactorily most of the natural reds.

GLIMPSES FROM GERMANY.

PROFESSOR Dr. H. W. Vogel, in Berlin, has retired from the editorial management of the *Photographische Mittheilungen*, transferring the duties connected therewith to his son, Dr. E. Vogel. Professor Schiffner, it is said, will also soon withdraw from the editorship of the *Wiener Photographische Blätter*. The name of his successor is not yet known.

* * *

Yellow Spots in Negatives.—Yellow spots, which have formed on negatives by insufficient fixing, etc., can be restored again by treating them with a diluted bromide solution. The negative is immersed in a 10 per cent. solution of bromide of potassium, to which have been added 2 per cent. of muriatic acid, and 2 per cent. of bichromate of potassium. After the negative has been thoroughly bleached, it is washed in running water for some time, exposed to daylight for a few minutes and developed again in a diluted iron developer.

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* Equivalent in grains.

.6 gram	=	9.258 grains.
7 grams	=	108.03 "
.5 gram	=	7.716 "
50 cubic centimeters,	=	771.5 "

† 7.09 × 9.45 inches = 67 sq. inches.

THE GRAIN OF DRY PLATES.

By R. E. Liesegang.

DURING recent calls on Dr. V. Schumann, Professor Oswald in Leipzig and J. Gaedicke in Berlin, the size of grain of the bromide of silver gelatine negative and its relation to the light-sensitiveness of the plate was the general topic of conversation.

One of Schumann's last experiments determined that the grain, shown by the developed negative, need not correspond with the original bromide of silver grain. This fact was of particular interest for him because he requires an emulsion of an extremely fine grain for his spectral-line views.

He exposed a plate in the ordinary way, cut it into three parts and developed the first part in a normal pyro developer. For the second part he added a little bromide of potassium solution to the developer and for the third a considerable quantity.

The well-known effect of the bromide of potassium was, of course, observable ; the third part was considerably richer in contrast than the first. But, besides this, a hitherto unknown action of the bromide of potassium showed itself, which is probably a secondary condition, in the increase of contrasts. The first part was of an extremely fine grain, so that the dissolution of structure can only be seen microscopically. The third part, on the contrary, had an extremely coarse grain ; the several grains of silver, separated from each other by glass-clear intersections, had almost the size of the autotypic grain. The second plate had a medium grain.

The original grain will, therefore, increase by addition of bromide of potassium to the developer. Schumann is of the opinion that, in the first place, since bromide of silver dissolves in the bromide of potassium, that the developer reduces the dissolved silver salt, and that the nascent metallic silver precipitates upon the silver grains of which the picture is composed, in the way of physical development.

The enlargement of the grain may also be caused by the reducing action of the bromide of potassium in the developer. I have shown recently that a grain may be produced by prolonged action of a strong alkali developer, like that of a developed negative, which is heated in a moist condition. It should, however, be taken into consideration that Schumann uses an emulsion, which is very poor in gelatine. Such plates might show the action more than normal dry plates.

Another possibility of the function of bromide of potassium in the developer was hinted at by Herr Gaedicke. In the emulsion film there are not only bromide of silver grains of one size, but of various sizes. The bromide of potassium will destroy the sensitiveness of the smaller grains, but will attack the larger size ones much less in proportion. Therefore only the latter would blacken in the developer.

This, of course, would explain the increase of contrasts. But for Schumann's phenomenon another explanation would have to be found.

Oswald does not believe that the increase of light-sensitiveness of an emulsion should be attempted in combination with the ripening, that is, with the concentration of the bromide of silver molecules to larger molecule complexes. All combinations showed a tendency to pass into a more solid form. The light-sensitiveness should therefore have become reduced after ripening.

Oswald believes, therefore, that the bromide of silver combines slowly with the gelatine. A handsome experiment, by which the function of the gelatine as a chemical sensitizer can be recognized, was shown to me by Schumann.

He coated one-half of a glass plate with a thin gelatine solution, while the other half remained free. He then put it into a water bath, containing finely distributed bromide of silver. The latter deposited uniformly upon the whole plate. Both parts of the plate were exposed and developed at the same time. The one-half containing the gelatine gave a normal and strong negative, while the other half without the gelatine showed hardly a trace of a picture.

Translated by

HENRY DIETRICH.

NOTES ON PORTRAIT WORK.

THE following hints from the Note-Book in the *Amateur Photographer* for March 12, 1897, will be found of use to amateurs in the posing of subjects for portrait studies:

"IT seldom has a satisfactory effect to turn the head one way and the eyes another, for this gives a sly, suspicious effect. In nearly every unconscious pose the eyes lead rather than follow the turn of the head."

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"IT is a very curious and important fact for photographers to remember that kneeling or sitting figures by the side of standing figures always look smaller, shorter than they truly are. In order to counteract this tendency the sitting or kneeling figure should be nearer the lens than the standing figure is, when this can be conveniently arranged."

◆

"IF the sitter has a rather thin, angular or bony face, or a face which is markedly long rather than oval, this effect can be 'artistically' treated, *i. e.*, slightly modified, by foreshortening. This may best be done by raising the camera and slightly lowering the lens by moving the sliding front of the camera. If this artifice be carried to excess, it tends also to shorten the neck and bring the shoulders up. A similar foreshortening effect may be got by lowering the camera and putting the lens up; but this is very seldom desirable, as it shows the opening of the nostrils in a very disagreeable way, makes the nose 'snubby,' and enlarges the chin.

"Somewhat similar, and in some cases better effects may be got without moving the camera, *i. e.*, by simply tilting the head of the sitter forward or backward. But these tend to show an uncomfortable or a twisted-neck effect."

THE UNION OF CARBON PRINTING AND COLLOTYPE: A READY MEANS OF MAKING FILMS FOR THE HELIOCHROMIC TRIPLET.*

By Thomas Bolas, F. C. S., F. I. C.

AMONG the most forgotten of processes may be mentioned the hydrotype of Charles Cros and the mariotype process, which involves a somewhat similar principle applied to carbon printing, yet this latter method enables any number of similar carbon prints to be rapidly made by a method of mechanical impression, with practical independence of the agency of light, and, what is, perhaps, of more importance, it enables us to make colored carbon prints or films independently of those conditions which ordinarily interfere with the purity of the colors, and influence in so troublesome a way the thickness of the resulting film, conditions of disturbance altogether set aside by the mariotype process.

The first stage, or the production of the printing surface, which is similar in the case of mariotype and hydrotype, may be thus summarized. A film of bichromated gelatine is exposed under an original, and after exposure the film is soaked in water, this soaked film being the printing surface. If the soaked film is saturated with an aqueous solution of a coloring matter, such as an aniline dye dissolved in water, it will yield an impression in that coloring matter on a sheet of paper, and we have the hydrotype of Cros. If, on the other hand, the impression is taken in a solution of potassium bichromate, on a sheet of carbon tissue, and the tissue is exposed to light so that the bichromate generates an insoluble image, we have mariotype, a method capable of several variations, as will be explained below.

The original printing surface is obviously the equivalent of a collotype plate, and those in the habit of preparing collotypic plates need not depart from their usual routine should they wish to prepare surfaces for experiments on mariotype or on hydrotype; but otherwise a less complex method may be adopted, as the hydrotype or mariotype surface is not subjected to that severe stress under the inking roller which cannot be avoided in the ordinary collotype process.

Those making plates specially, may adopt the following simplified collotype process to prepare the original printing surface plate. A finely ground and clean slab of stout plate glass is flooded with a solution of silicate of soda—1 part of the commercial syrupy silicate and 20 parts of water—and set upon edge to drain and dry; this being a sufficient treatment for securing the necessary adhesion of the film. When the plate is dry, it is leveled and flooded with—

Soft gelatine	10 parts.
Glycerine	1 part.
Water	100 parts.

There is no necessity to use the collotype drying oven; indeed, a warm room free from draughts is better. The degree to which the dry film is sensitized with bichromate of potassium or ammonium will depend on considerations which are common to almost all bichromate methods, but immersion for about three minutes in a 5 per cent. solution of bichromate of potassium may be taken as an average. Exposure, whether under a positive or a negative, offers no difficulty, as it can be judged of by inspection at the back, and should be continued until the details in the most opaque parts of the original are traceable. The soaking out is exactly as in the case of ordinary collotype.

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* *The Process Photogram and Illustrator*, April, 1897.

If the hydrotype method of printing is intended, a positive transparency will be required as the original, and no special instructions will be required by the general practitioner; the need of using very smooth paper is obvious, and, moreover, the paper should not be too dry or it will not receive the fluid properly, but it should not be damped quite in the sense that a printer ordinarily uses the term. The various coal-tar colors, or such of them as are soluble in water, may be used, or, in the case of alizarine, weak ammonia may be employed as a solvent. Carmine, dissolved in ammonia, gives a fine crimson. Another principle of working steps in if the paper is charged with one material capable of contributing towards the production of a color and the other material is supplied by the hydrotype block. Thus, the paper may be prepared with a solution of 1 part of ammonia citrate of iron dissolved in 15 parts of water, and the printing block may be moistened with a saturated solution of ferrocyanide of potassium, a combination which will give prints in Prussian blue. The hydrotype block or plate should, it may be mentioned, be by no means wet in the ordinary sense, but about as damp as a collotype plate is usually left after soaking—or etching, as it is sometimes called—and wiping.

It is not, however, with the hydrotype that I am more especially concerned just now, and the above as to printing in hydrotype from the plate is introduced rather by way of parenthesis. The same plate, exposed under a transparency, may be used for mariotype printing, although for one of the original forms of mariotype a similar printing plate exposed under a negative would have to be used.

M. Marion, in his communication to the London (now Royal) Photographic Society in 1873, did not recommend a printing film on a rigid surface such as I have described above, but a flexible surface coated with gelatine, to which a white pigment had been added, an obvious advantage as far as exposure is concerned, as the ordinary printing frame can be used and the exposure can be judged much as in making a print on paper.

In the following notes I shall not attempt to discriminate between the original form of the mariotype method, some modifications suggested by Mr. Baden Pritchard, and some details of working which are the result of my own experience.

Let it be supposed that the mariotype plate, as prepared above by exposure under a positive, is mounted on the press, and that the soluble parts of the gelatine have been soaked with—

Chrome alum	2 parts.
Bichromate of potash	2 "
Water	100 "

An impression having been taken on a piece of ordinary carbon issue, there being only a short dwell of the tissue on the block (say, half a second), we get a print in something more than a mere sensitizing material, the chrome alum being directly insolubilizing in its action. Such prints, if allowed to lie about in an ordinary lighted room for some hours, or if kept even in a dark place for about twenty-four hours, are capable of being developed just like ordinary carbon prints. Of such prints, it is quite easy to make fifty or more per hour from the mariotype block, and, if it were worth while, there is no doubt that the prints might be made with a machine. The mariotype block seems to be almost everlasting as against fair printing, but it may easily be spoiled by the adhesion of the carbon tissue. To guard against this, it is necessary that the printing block and the carbon tissue should not be too different as regards hygroscopic condition. The printing block or plate should be slightly moistened with the bichromate and chrome alum solution before each impression, and then wiped; while the tissue should be quite flexible, or about in the condition which will result from hanging it up for a night in a very damp cellar. Indeed, these conditions are as essential for obtaining a good print as they are for obviating adhesion, and with them as good a print can be obtained as when the carbon tissue is exposed under a negative.

Instead of exposing the original plate or block under a transparency, the exposure may be under a negative. In this case an impression can be made from the mariotype block by moistening it with a 2 per cent. bichromate solution and leaving the tissue in contact for twelve or fourteen hours, when the image spreads by an action similar to that known to carbon printers as the continuating action of light. In another form often the impression from the negative is made on a plain gelatinized paper made sensitive with bichromate. On this print a piece of unexposed tissue is squeegeed, a 2 per cent. bichromate solution being used instead of water in this operation. After the unexposed tissue has remained in contact with the exposed transfer paper for some hours (twelve to fourteen), the image will have spread sufficiently, and development may be performed in the usual manner. This process gives a non-reversed print from an ordinary negative.

It is that form of the mariotype in which the impression is made upon unsensitized tissue with the mixed solution of potassium bichromate and chrome alum that I wish specially to emphasize, as this method can give a class of colored or pigment prints which are otherwise specially difficult to produce, and, moreover, may lead to several new developments of photo-mechanical printing.

Let us now suppose that it is wished to obtain film prints in three colors for superposition in heliochromy, or a print in plain gelatine for staining ; and let me take the latter case first.

If a tissue is made with plain gelatine, and used as ordinary carbon tissue, the light will strike completely through the film, and the backing paper cannot be stripped off ; unless indeed, the sensitive film be enormously thick, and then one obtains what is really an extra thick Woodbury relief rather than a thin film corresponding to an ordinary carbon print. Not only do the ordinary conditions of carbon printing become inapplicable or scarcely applicable to working with such a thick layer of gelatine, but the result itself is useless as a film for staining. Even in making ordinary Woodburytype reliefs, a little Indian ink, or other pigment, has to be added to keep the thickness of the relief within bounds. A little consideration will show that under-exposure alone will not give a thin film ; it will merely give the high lights.

When a tissue is made up with such transparent and by not very non-actinic pigments as are likely to be used in making films for superimposed three-color heliochromy, the tendency will be towards the production of unmanageably thick films ; thick films of this kind being unmanageable mainly because the thickness is necessarily unequal. If an attempt is made to obtain thinner films by overcharging the film with bichromate, whereby the gelatine is made more adiactinic, other complications set in, to say nothing of the deterioration of the colors which is generally inevitable.

By adopting any one of the three forms of the mariotype method, an impression can be made on a gelatinous tissue quite unpigmented or pigmented with such colors as precipitated sulphide of arsenic, alizarine lake, and Prussian blue, the three colors most likely to be used for heliochromic purposes, and thin prints—that is to say, thin as regards the gelatinous base—may be made from these tissues. In this respect I think the neglected mariotype may prove of great value.

I have not in any way touched on such subjects as development on collodion, backing up, and stripping, as the details of such matters are well known to experts in carbon printing.

All copy for June issue must be in our hands by or before May 15th.

"ASPHALT AND BICHROMATE, MIXED."

By C. B. Talbot.

The above article in your March number from *Process Work* has reminded me of some experiments tried by me about twelve or thirteen years ago. As they were successful, and there seems to be a desire for something of the kind, I will describe them for the first time in print.

The asphaltum was first bruised into small grains in a mortar and then placed in a bottle containing sulphuric ether, which dissolves that part of the gum which is to be set aside or discarded. The residue or undissolved portion is caught on a fine cloth strainer and placed in a bottle containing benzine in which has been placed a small lump of dry unslaked lime (this absorbs any water that may be in the benzine), and the asphaltum grains from the filter are soon dissolved by it. If the solution is thick it should be reduced, so that when poured on a piece of bright zinc, and flowed over, it will look a light wine-brown color. Perhaps to call it straw color would be better than to call it brown. The coating is very thin, indeed. When it is so thin as only to faintly cover the zinc, it will be strong enough to etch on. The plate having been coated by pouring on a small quantity and rocking from side to side, pour the surplus back into the bottle, but keep rocking the plate till dry, which will be in a few moments, as the benzine soon evaporates and dries off. Such a plate will keep several weeks and will, under a good negative and light, require about three hours' time to print. It can then be developed by making a thick lather of soap suds, using a wad of cotton-wool, on which has been placed a few drops of sweet oil and a drop or less of spirits of turpentine. Be careful about the turpentine, as the very smallest quantity seems sufficient. Do not be in any hurry, but dab the plate all over with little pats, and watch carefully. Shortly the lines appear clear and clean if the printing has been long enough; otherwise the whole may dab off and leave nothing but bare clean metal.

The above process requiring about three hours to print, and only the best of dense negatives, I determined to try a variation. The plate was coated precisely as described above, and, when dry, flowed with a very thin coating of bichromated gelatine, sensitized in the usual manner by adding the powdered bichromate to the warm solution of gelatine. Make the asphaltum-coated plate just warm enough to feel it only slightly on the hand, and then pour the warm gelatine over it, and allow it to run off at one corner. Dry it immediately with gentle heat over a lamp or gas burner, holding the plate in the hand with its back downwards and the coated side away from the flame. Do not hold the plate any nearer than feels only comfortably warm, and move it gently all the time until it is dry. If not used at once, a piece of glass, or another plate, should be laid over the coated face, and both wrapped up carefully in several thicknesses of paper, as the bichromate skin suffers from absorbing the moisture from the air and becomes less sensitive. All of the above operations should be done at night or in the darkroom.

The plate having been printed under the negative (from two and a half to twelve minutes as required), commence by using a little cold water in a tray, laying the plate in it to soak some fifteen to twenty minutes, then lay the plate in a tray containing tepid water, which feels only well warm to the hand. Then with a tuft of cotton dab the plate all over, but do not rub it. The unprinted gelatine will now come off easily and leave only the lines, which can be seen when looking across the plate edgewise, in reflected light, and when the surplus gelatine is all cleared off, the asphaltum ground can be commenced on, developing it with the oiled tuft of cotton, turpentine, and soap lather, as at first described. Watch the work carefully. There is a tendency to undercut on the part of the turpentine, in working under the gelatine lines. Once the metal is clear, the dabber should not be placed on it again. It is advisable to wash the plate well in clear water occasionally, using a clean cotton dabber and water only. If the plate has not cleared, it will do so when the turpentine and oil dabber is applied the second time. Be patient, proceed slowly, use the smallest amount of turpentine possible, and you will succeed.

I think albumen could be used as well as the gelatine, though I have not tried it, and since it is a wash-off process the same as on albumenized zinc, it could be "rolled up" with etching ink, and then washed as usual, removing surplus ink, and then the asphaltum ground, developed as described above, when the gelatine or albumen, made water proof by the light, would be covered both top and bottom by a compound that would be acid proof when the dragon's blood is dusted on to the ink and melted in as is customary.

Everyone has observed that etchings on albumen plates undercut much worse than enamel-coated plates, and neither are good "resists," as compared with asphaltum, or good etching grounds when the acid commences to be at all strong.

The only difference I could observe between gelatine-coated asphaltum and the asphaltum plates alone, was that the lines were a little coarser under the gelatine than under the asphaltum only. Hence the work was not so fine. There is really nothing so fine as the asphaltum alone. It is vain to try to improve it. But it requires such a great length of time to properly print, that most persons want something quicker, even if not so good. The above suggestions will give the speed, and the asphaltum can be relied on to take care of the acid. After the first two or three weak bitings, the asphaltum-coated plate should be made well warm to the hand, when it can be bitten two or three times more, "rolled up," and dusted in as usual. I really can see no good reason why a number of good etching grounds could not be operated on by proper solvents, as indicated, having coated them previously with ammonium or potassium bichromate films, as described.

ENAMELING PRINTS.

Replying to an inquiry from a subscriber to the Bulletin we take pleasure in republishing from the "Art and Practice of Silver Printing," Mr. W. England's formula for enameling prints :

"I have a glass having a polished surface (patent plate is not necessary), and rub over it some powdered French chalk tied up in a muslin bag. Dust off the superfluous chalk with a camel's-hair brush, and coat with enamel collodion. I find it an improvement to add to the collodion usually sold for the purpose 2 drams of castor oil to the pint. When the collodion is well set, immerse the plate in a dish of water. When several prints are required to be enameled, a sufficient number of plates may be prepared and put in dishes; this will save time. Now take the first plate, and well wash under a tap till all greasiness has disappeared ; place it on a leveling stand, and pour on as much water as the plate will hold. Then lay the print on the top, squeeze out all the water, and place the plate and print between several thicknesses of blotting-paper to remove all superfluous moisture. The plate, with the print in contact, should now be placed in a warm room to dry spontaneously, when the print will come easily from the glass. Care should be taken not to attempt to remove the print till quite dry. If the pictures required to be enameled have been dried, it will be necessary to rub over them some ox-gall with a plug of soft rag ; otherwise the water will run in globules on the surface, and make blisters when laid on the collodion.

"I may mention that prints done in this way lose their very glossy surface on being mounted, but retain their brilliancy, which I think is an improvement, as I dislike the polished surface usually given to the print when gelatine is employed."

PROCESS NOTES.

"Steel for Photogravure.—There seems to be no reason why steel should not be used for photogravure instead of copper. The price of the prepared metal is no higher than copper for the same purpose. Fleck, a Continental writer on process matters, says that, so far as he is aware, there has hitherto been no practical use of steel for photogravure. He says that it is indeed an open question whether it has yet been tried, and yet it is simple, easy and practical. A photogravure etched in copper must be cleaned off and hardened, after an edition of some one thousand copies have been printed from it. If the etching is made directly on steel, labor and loss of time during cleaning and hardening would be saved, and sharp prints would be obtained throughout the whole edition. The process is easier, moreover, because the etching is more easily watched than when copper is employed. Perchloride of iron also etches steel better than it does copper, and is the best etching medium, bearing the same relation to steel as nitric acid to zinc."—*Process Work and the Printer.*

◆

A new press has been patented across the water for collotype printing which, according to the claims of the patentees, will show decided improvements in damping, inking and masking, over those now in use.

* * *

"Among recent patents is one relating to improvements in platen machines whereby a uniform impression can be secured without the ordinary process of making ready, this being attained by the ends of a number of fixed, independently yielding and elastic wires or brushes, or their equivalents, arranged in close proximity to one another, and smoothed off evenly."—*Process Work and the Printer.*

* * *

Current gossip has it that several large orders are in the field for paper, two or three of them running up into figures that will require the delivery of 100 tons or more monthly. This ought to point to increasing prosperity in the process worker's field, inasmuch as the demand for plates is apt to keep pretty closely in touch with the consumption of paper.

SOCIETIES

At a regular meeting of the Photographers' Copyright League on Thursday, January 14, 1897, the following note was offered and unanimously received, and a request made that the same be entered upon the minutes of the League, and a copy of the same be sent to the family of our late loved and honored President, Napoleon Sarony:

"In looking back upon the remarkable development of the photographic art during the last three decades, we feel that to no one person are we so indebted as to Napoleon Sarony. Not only is this true as to his genius and knowledge, but for the courage of his convictions and his bold determination that the common-place should surrender to the artistic. His bold leadership in this direction gave heart to those who also felt that the art-science could be brought to a higher plane, and who fell into the ranks to fight for excellence.

"Antagonized by the ignorant, he was followed by those who were ambitious to better themselves and their art. This influence extended throughout the country, and is felt to-day by many who do not realize or know to whom they are indebted. Therefore, be it

"*Resolved*, That, realizing as we do that his life was well rounded out in years, reputation and leadership, we join in sincere grief that inexorable time has claimed its own, and we herewith extend to his family our sincerest sympathy in their great sorrow. Family, friends and art are alike bereaved."

* * *

The annual meeting and election of officers of the California Camera Club was held at the Club rooms April 6th. The reports of the various officers and committees showed the organization to be in good condition financially and numerically, there being a surplus of money on hand, and the membership being three hundred and forty-two.

The following officers were elected for the ensuing year: W. B. Webster, President; W. E. Goodrum, First Vice-President; E. W. Jensen, Second Vice-President; H. B. Hosmer, Secretary; E. G. Eisen, Treasurer; A. L. Coombs, Corresponding Secretary; J. J. B. Argenti, Librarian; C. F. Cormack, E. J. Dollard, C. A. Lee, Phil Maunder, Directors.

◆

THE Fifth Annual Print Exhibition of the Albany Camera Club was given at the Club house, No. 72 Chapel street, Albany, during the week beginning April 7, 1897.

The exhibits, some one hundred and fifty in number, excelled in quality those of any previous year, including some admirable portraits and landscapes.

The "interior" work was also greatly admired, while the rare and interesting collection of views of "Old Albany," by Colonel Pruyn, formed a notable feature of the exhibition.

The prizes were awarded as follows:

1. *Landscapes.*—Negative by exhibitor; first prize, silver medal, C. W. Reynolds; second prize, bronze medal, W. H. Stillman; honorable mention, J. S. Van Buren.

2. *Portraits.*—Entirely the work of exhibitor; first prize, silver medal, E. D. Mix.

3. *Portraits.*—Negative by exhibitor; first prize, silver medal, W. W. Byington.

4. *Interiors.*—Negative by exhibitor; first prize, silver medal, Colonel Aug. Pruyn; second prize, diploma, Colonel Aug. Pruyn.

5. *Enlargements.*—Entirely by exhibitor; first prize, silver medal, Dr. H. Van Rensselaer; second prize, bronze medal, W. W. Byington.

6. *Instantaneous.*—Negative by exhibitor; first prize, silver medal, L. H. Stewart; second prize, bronze medal, W. H. Stillman.

7. Best six-lantern slides, work of exhibitor; first prize, silver medal, E. D. Mix; second prize, bronze medal, C. L. Palmer; honorable mention, M. H. Rochester.

By the courtesy of Mr. George Timmins, of Syracuse, some three score of his prize prints were shown, and added largely to one of the most attractive and successful exhibitions ever given by this Club.

◆

THE Detroit Camera Club are to hold their first annual exhibition of photographs at their Club rooms during the first week of May, on which occasion the prints will be divided into two sections, as follows: In the first section, the photograph to be made entirely by the exhibitor; in the second section, the negative only to be made and developed by the exhibitor. Each section is to be divided into six classes—marine, landscape, portrait, genre, interior and animal studies. A gold and silver medal will be given in each class. This exhibition and competition is to be open to all, and the Club looks for a very satisfactory exhibit.

◆

THE sixth and last lecture of the series of six, delivered under the auspices of the Chicago Central Y. M. C. A. Camera Club, is announced for Tuesday evening, May 11th, on which occasion Mr. James Inglis is to give a talk on "Copying and Enlarging." The series of lectures, of which this is the closing one, has proved very interesting and beneficial to the Club.

◆

THE following announcement of the Boston Camera Club is of great interest as it opens up a comparatively new field of investigation, and one that will be likely to prove of a good deal of scientific value in determining the long mooted question of the methods which render the soaring of birds possible.

BOSTON CAMERA CLUB.—PRIZE COMPETITION.

The Boston Camera Club, representing a gentleman of high standing in matters pertaining to Aerial Navigation, is authorized to make the following offer of prizes for instantaneous photographs of large soaring birds :

A prize of one hundred dollars ($100) is offered by the Boston Camera Club for the best instantaneous photograph of a large bird in the act of soaring.

An additional prize of fifty dollars ($50) is offered for the greatest number of instantaneous photographs, offered by one photographer, of large birds in the act of soaring.

By " soaring " is meant the attitude of the bird in the air when no wing motion is apparent.

The purpose for which the photographs are desired—namely, the study of wing-angles and a possible movement, unappreciable to the eye of the observer—necessitates that the figure of the bird should be at least half an inch long on the print. If the figure is small, but clearly defined in detail enlargements will be preferable to contact-prints, and will be judged of equal merit with direct prints.

Careful notes should be written on the back of each picture, detailing the appearance to the eye, the quickness of the shutter, the angle of camera, etc.; also the full name and address of the contributor. Two prints of each picture should be sent.

All contributors must prepay the transportation charges of their exhibits (which may be simply card mounts), and in no case will they be returned.

Photographers throughout the world are cordially invited to compete.

This offer remains open until October 1, 1896 ; but, if on that date at least one hundred different photographs have not been received, the limit of time may be extended, of which due notice will be given.

The Club freely offers its galleries for the exhibition of the pictures submitted, and pledges its best efforts to select judges fully competent to decide upon their merits and to make the awards.

All contributions should be sent to the Boston Camera Club, 50 Bromfield street, Boston, Mass., U. S. A., and marked " Cabot Competition."

For further information apply to Mr. Samuel Cabot, care of Boston Camera Club, at above address.

Time extended to October 1, 1897.

* * *

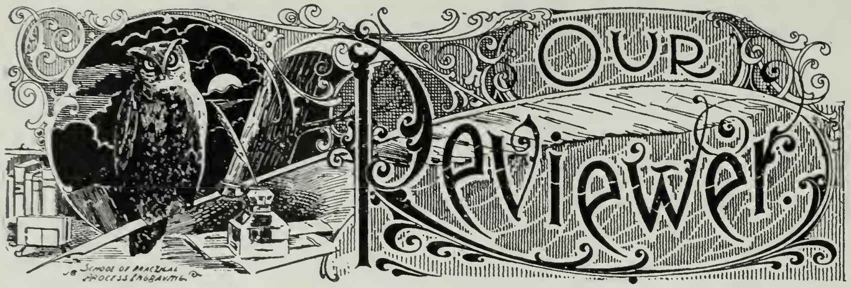
THE second annual spring exhibition of the Central Camera Club of the Y. M. C. A. of Brooklyn was held at their rooms on the evenings of March 23d to 25th, inclusive, in conjunction with the Central Sketch Club. About one hundred and fifty photographs were on the walls, making a very attractive and creditable showing. Some of the best views exhibited were made by Mr. Chas. Kuhn, Mr. W. H. Loughlin, Mr. W. H. Lowery and Mr. F. E. Wheeler. This Club is in a very prosperous condition, and its work shows the progressive element which is so necessary to success.

* * *

AT the rooms of the American Institute, Photographical Section, on April 6th, Mr. Alfred Stieglitz showed a remarkable collection of slides, consisting of about one hundred and forty subjects, specially selected from his work of the last few years, and covering landscape, genre, portrait, wind, snow and other fields of illustration. Some particularly fine effects were displayed in snowscapes and mountain scenery, where, by chemical manipulation in development, the sky was sent back to its proper optical position without detriment to the details in high lights or dark shadows. Several views of street scenes, where the actual effect of falling snow and steam rising from the bodies of weary horses were strikingly apparent, and two or three night scenes in the city and moonlight effects on water, were of great interest and merit.

* * *

AT the meeting of the Detroit Camera Club, on April 6th, the following officers were elected: President, Dr. Hugo Erichsen; Vice-President, Mrs. G. O. Pratt; Secretary, J. E. McGrath. The first exhibition of amateur photographs will be held in May, and will be divided into two sections, in one of which the work must be entirely done by the exhibitor, while in the other the toning and printing may be done by professionals. Gold and silver medals will be given as prizes in each class.


OUR
Reviewer.
School of Practical Process Engraving

We have received from the publisher a copy of *L'Art dans les Projections*, by Frederic Dillaye, an attractive volume, octavo, illustrated with fifty-five photo-collographs, made by M. Royer, of Nancy, after photographs by the author. Published by L. Gaumont et Cie., 57 Rue Saint Roch, Paris.

A collection of snow scenes and landscape views has been received from Mr. J. W. Henderson, of Railroad Flat, Cal., that are full of interest. The former possess in a rather unusual degree the quality of atmosphere, so difficult to obtain except with the stereoscope, the trees laden with clinging snow standing out in relief from the distance in a charming manner. Were it not for the loss that would result in process, we should be glad to publish one or more of them.

Pose and Illumination in Portrait Photography is the title of a new publication from the pen of Dr. F. Stolze, the first volume of which has been sent to us by the publisher, Mr. William Knapp, Halle a S., Germany. It is an interesting and instructive work, which our German-speaking friends of the fraternity should not be without. Dr. Stolze's name is a sufficient guarantee for the value of the book.

From the same publishers we have received "Guide for Carbon Printing," after the old and new methods, by G. Mercator. This book comprises the various treatments of the old processes of carbon printing, as well as the latest improvements, and as such is a valuable handbook to all lovers of carbon printing who understand the German language.

A group picture from Mr. Joseph M. Brooks, of Columbus, Ind., called "Spring Time," is treated with a good deal of feeling, and is a very pretty bit of composition, but the lighting, being somewhat flat and lacking in contrasts, renders it less satisfactory than it otherwise might be.

The International Annual of Anthony's Photographic Bulletin, 1897. E. & H. T. Anthony & Company, New York.—Though every line in this annual visitor is worth reading, it has added this year a department of process work which makes it doubly attractive. Mr. Oscar E. Binner's article on "The Business End of Photo-Engraving" is alone worth the small charge for the volume. "Workroom Hints for Process Engravers" is thoroughly practical. Other articles are: "To a Beginner in Etching," by C. B. Talbot—himself evidently a beginner; "Reversing and Enlarging Gelatine Negatives," by Henry Pickering; Half-Tone Direct from Nature," by William Gamble; "Color by Means of Photography," by A. C. Austin; "Timing Half-Tone Negatives," by H. Woodbury Shaylor, Jr.; "Substratum for Collotype Plates," by Y. Isawa. Also a number of process formulas. The half-tones scattered generously through the volume are excellent studies. There is one of peculiar interest, being a magnified reproduction of a half-tone of thirty years ago.—*The Inland Printer.*

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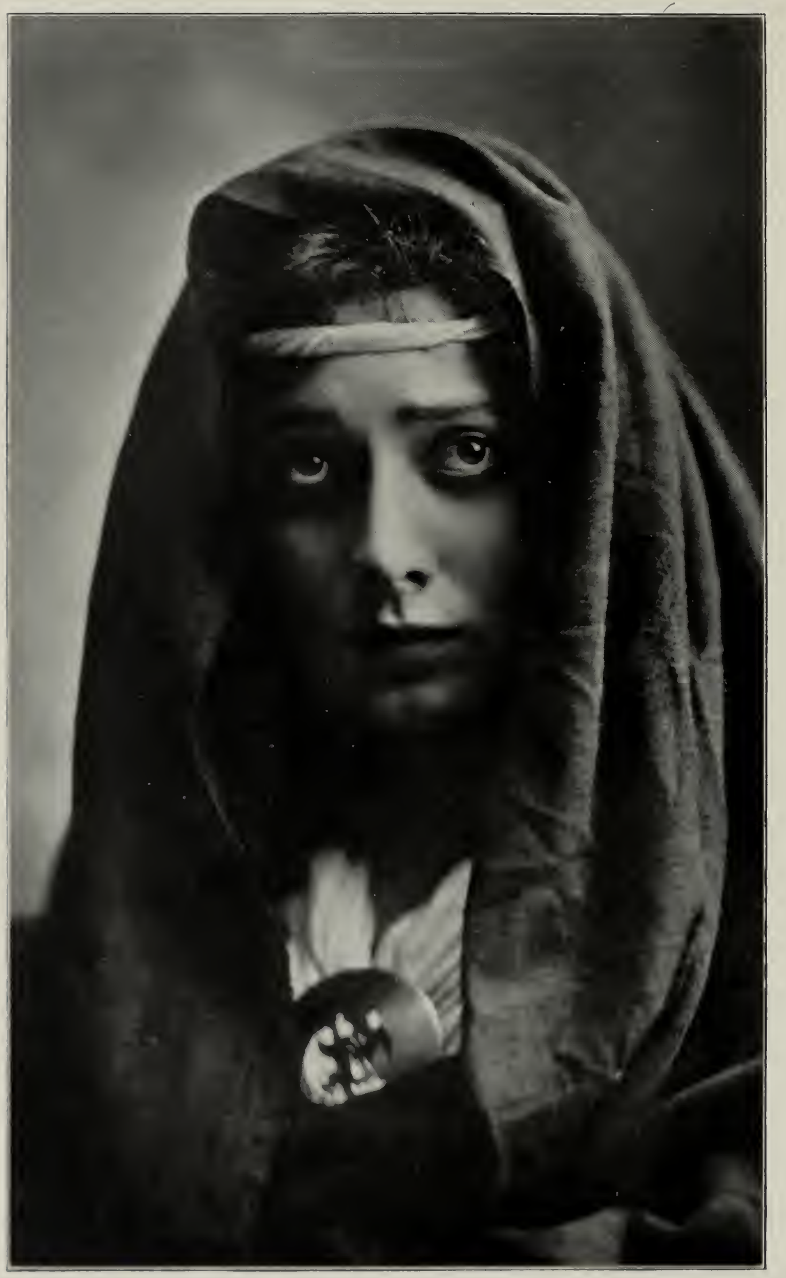

PHOTOGRAPH BY DANA,
NEW YORK AND BROOKLYN.

ENGRAVED WITH RICHARDS' CROSS-LINE SCREEN.

JULIA MARLOWE-TABER
IN
"BONNIE PRINCE CHARLIE."

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXVIII. JUNE, 1897. NO. 6.

THE PERSONAL EQUATION IN PHOTOGRAPHY.

THE present time is probably more than any other in the history of photography the opportunity for personality in studio work. Photographic manipulations have come to such a state of perfection that ordinary studio work on the old lines that have been followed in many galleries for the past decade or two are possible to almost any studio having a fairly good equipment; but the men who are making the highest marks in photography to-day are those who combine with the technical manipulation of their work their own personality, and impress it upon each print that is turned out from their galleries. The reader will easily make a mental list of men who are prominent for this ability, and whose work bears impress of their own mind, thought and personality in just the same way that an article of merchandise bears its trade-mark on the wrapper. This is the kind of work that makes photography an art, infusing into the productions the mind of the artist, and showing in every line of the drapery and every light and shadow of the picture the controlling influence of the master-hand. The personal equation enters into studio work to-day as it has never before done, and should be encouraged to its utmost. The annual conventions of photographers and the interchange of thought and methods, together with the comparisons of finished work resulting therefrom, should tend to awaken to new life the latent talent and encourage and stimulate to greater effort all engaged in the art. Our word is, then, assert and cultivate the personal element, seeing to it that every effort is made to elevate and improve; work out some new line, or revive with new and effective treatment some old line. Press onward with a determination to make your personality felt in every print, and a short time will be sufficient to show improvement, and with improvement in quality may reasonably be expected increasing demand. "Nothing succeeds like success."

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RADIOTINT PHOTOGRAPHY.

THE interest manifested in radiotint photography since the announcement contained in the May BULLETIN has been unprecedented. We know of nothing in late years to which it can be compared. The prints brought from the studio of M. Chassagne have been examined by thousands of people, and many who have seen them once have returned to study them still further. Representatives of the daily and photographic press have studied them very carefully, and, while all agree that the effects are wonderfully close to the colors of Nature, the wonder and mystery increases as one tries to account for the chemical change which makes it possible for different parts of the print to extract from the coloring liquids the varying quantities and tones of color necessary to produce the varied hues which appear in the finished prints. We had hoped to see demonstrations of the manipulation before going to press, but, after holding back the forms as long as possible, are compelled to postpone to the July number a full account of the working of this most important discovery.

THE CHASSAGNE FORMULA.

REFERRING to the publication in many of the photographic journals of the alleged formula for the Chassagne radiotints, and the somewhat curious comments that have accompanied it, the BULLETIN would like very much to learn on what authority this formula was coupled with M. Chassagne's name. In view of the fact that the nature of the liquids and the formula under which they are compounded are held strictly secret by the inventor, and, further, that several very important points in the manipulation, as set forth by M. Chassagne, are entirely ignored in the published document, we submit that the public should be informed as to the authority on which it was published.

If it develops that the formula is a correct transcript of the patent specifications it would seem to indicate that the inventor has made use of it on the lines suggested by Talleyrand, who claimed that language was more useful for the concealment than the expression of thought, and it is not at all impossible that the formula may have been made with an idea of confusing the reader and covering up the secrets of the invention and the method of compounding the several liquids, rather than making it public.

DON'T fail to keep prominently in mind the Red Letter Convention at Celoron Park, July 12th to 17th. Everything points to an abundance of entertainment and instruction.

The days will be all too short to contain what will be crowded into them in the way of solid information and advantage. Take the ladies with you to the Convention, and you will find that they, too, can appreciate a good thing.

All copy for July BULLETIN *must be in our hands by June 15th, at latest.*

Items of Interest

HARVARD COLLEGE is about to be supplied with a new 8-inch photographic telescope, which we understand is almost completed, and which will be, when finished, one of the most remarkable photographic instruments in existence, being designed to automatically photograph the heavens. The changing and exposing of plates will be performed without any human intervention, except that the programme will be first laid out and the machine set to perform the operations as required. The supply of plates is furnished by means of a drum, within which is a revolving frame, carrying eight plates octagonally arranged, so fixed that when the telescope, having finished an exposure on one plate, returns to the meridian, the frame carrying the plates makes one-eighth of a revolution, thus bringing a new plate into the telescopic field. Each exposure occupying twenty minutes, it will be seen that plates for almost three hours' work may be carried and handled automatically. It is expected that the new telescope and apparatus will be in working order by the middle of June, and results are looked for with much interest.

THE Supreme Court of North Carolina has passed down a decision, holding that photographs are competent evidence in trials for homicide, railroad collisions, mill-dam suits, etc. This we believe to be the first decision in North Carolina admitting photographs as evidence.

A REMARKABLY delicate instrument for measuring durations of time which has been in the hands of the War Department for a considerable while, but in accordance with the rules of the department was not announced until its official publication had been made, has been recently described. A tuning fork is the instrument of measurement, each vibration being photographed on a sensitive plate by projecting a ray of light through a hole in one of the tuning-fork prongs in such a way as to strike the sensitive film wound around a cylinder and rotated at a speed of from six to ten thousand revolutions every minute, the effect being to draw each vibration out into a long, sinuous band, which is easily capable of division and subdivision by the microscope. A record of each vibration is readily seen by the naked eye, and when it is divided into fractions, the measurement may be computed to the tenth of a millionth of a second, according to reports which have reached us.

This instrument plays an important part in computing the velocity of projectiles, falling bodies, expansion and contraction of metals, and numerous other scientific and commercial problems.

◆

In view of the extreme delicacy and danger of deterioration in the old daguerreotypes, the following account of Mr. Foxlee's method of cleaning the same has a considerable interest, and we publish it as recently described by himself before the Photographic Club of England:

His method is: First, to flood the plate with alcohol; then wash under the tap until the water flows quite evenly over the surface. Next, to apply a weak solution of cyanide of potassium to the image, and rock the plate gently until the tarnish and discoloration go. If a continued application is ineffectual, the strength of the cyanide must be increased. Afterwards wash the plate, first under the tap and finally in distilled water. The plate must be dried by heat over a spirit lamp, and it is important that no check should take place during the evaporation, or an ineradicable stain will ensue. It was pointed out that daguerreotypes do not fade, but that a tarnish creeps over the plate. This tarnish can only be removed by the method indicated. On no account must any friction be applied to the surface, nor must it be dusted with a brush. The least touch damages the surface of the film. Sometimes defects apparently due to the daguerreotype itself are really only a change in, or the deposit of moisture upon, the cover glass. In this case the remedy is obvious.

◆

Professor William Hallock, of the Department of Physics at Columbia College, is reported to have perfected an instrument for measuring the human voice. Professor Hallock's method consists in the use of a series of hollow, metallic spheres, each differing from the other in size and each vibrating to different musical tones. Each sphere is pierced with a small hole opposite which a membranous drum is placed, with a lighted gas jet at the further side of the drum. When the air inside the ball is vibrated by the sound which corresponds to its tone pitch, vibration also ensues in the membrane, causing the jet to jump, the effect upon the flame registering the pitch of the tone. This test is said to be infallible, and the idea is believed to be capable of a wide field of usefulness.

◆

A second edition of the May number of the Bulletin has been found necessary, owing to the demand for copies of this number containing accounts of the radiotint method of photography. Any of our readers who may desire additional copies can now obtain them by corresponding with the publishers.

◆

We are sorry to learn that on the 3d of May the photographic studio of Mr. B. L. H. Dabbs, of Pittsburg, Pa., was destroyed by fire, and that his loss was extremely heavy, all that remained being the safe and contents.

The immense number of photographic plates which have been and are constantly being exposed and developed in astronomical work, and the comparative slowness with which they may be measured and filed, renders it clear that very great interest attaches to the durability of the plates themselves.

In the case of the Rutherfurd plates, attention is called to the extreme importance of this matter by Mr. Harold Jacoby, in a paper read before the New York Academy of Science early in April of 1896, in which he remarks that the major portion of the entire Rutherfurd collection of plates is still unmeasured, and, inasmuch as they are already nearly a quarter of a century old, they will supply a unique contribution toward the study of interstellar motion. A point of difference will come in when the Rutherfurd plates are compared with those of more recent date, as the former were made by the old wet-plate process, and coated upon glass which had been albumenized. It is thought probable, however, that the modern plates will equal in all respects, so far as their lasting qualities are concerned, those used by Mr. Rutherfurd, and a careful measurement and comparison of the Rutherfurd plates with those of the present day is expected to show that no deterioration in the durability takes place, even after the lapse of many years.

◆

Lists of prizes and awards were completed at the meeting of the Executive Committee of the Photographers' Association of Canada, held on April 23d. An estimate of receipts from all probable sources showed the outlook to be the most promising of any season in the history of the Association. The Convention will be held in London, Ontario, August 17th, 18th, 19th, 20th, and a large and enthusiastic meeting is expected. One grand prize, seven class prizes and a number of special prizes will be competed for.

◆

A writer in *The Amateur Photographer* makes a good suggestion in regard to development of negatives of interiors or subjects having strong contrasts, in which he says that, before developing, he places a piece of clay-pipe stem, about 3 inches in length, on the top of his dark-room lamp, and if any parts of the negative seem to hold back unduly, he breathes gently on such parts through the hot stem. He claims that this local treatment is quickly and thoroughly effective, and in many cases of extreme advantage.

◆

An inquiry comes from one of our readers, which has been made before from other sources, as to whether photographic plates exposed abroad and developed outside of this country are dutiable, also as to whether photographs, not being works of art, are subject to duty ?

We would reply to this query that the Board of United States General Appraisers has decided that films or plates exposed abroad are dutiable on their return to the United States ; all prints made abroad are dutiable, and all foreign-made photographs are dutiable.

NOTES ANENT THE COMING RED-LETTER CONVENTION.

THE BULLETIN takes great pleasure in announcing to its readers and friends that arrangements have been made by which a special train or cars will be provided for those joining the BULLETIN party. This train will leave New York on the evening of Sunday, July 11th, at 7.30. reaching Chautauqua at 7 o'clock Monday morning. It has been deemed advisable to make this trip in the night rather than during the heat of a summer day, and we believe that all joining this party will find it a very convenient and agreeable way of reaching the Convention grounds. The price of a double berth will be $2.50, or of a section $5. Inasmuch as we must know beforehand just how many are going to avail themselves of this opportunity, we would ask all contemplating attending the Convention from this part of the country, and other sections beyond New York, to communicate with the editor of the BULLETIN as early as possible, stating how many single or double berths will be required, upon receipt of which full information regarding place of meeting and particulars in general will be given. We must have all applications in our hands by the 8th of July in order that every one may receive the best and equal attention.

The BULLETIN takes this means of urging it upon its friends to avail themselves of the opportunity to join the BULLETIN party, and practically begin the good time of the Convention in New York rather than waiting until Celoron Park is reached.

For further information address "Editor" Anthony's Photographic BULLETIN, 591 Broadway, New York.

* * *

PRESIDENT HAYES writes: "While the success of the convention of last year was beyond the expectations of all, yet the experience which was gained through it should be the foundation upon which to build a larger, broader, and more successful convention for 1897.

"There always has been a demand for criticism—just criticism. There is a demand for criticism by an artist, and purely from an artistic view point; from one whose ability is unquestioned, who is practical, and whose experience is of such a nature as to permit of his making a criticism bearing with it a deep lesson, and not a superficial, shallow talk.

"While it has been my pleasure to be present at two conventions where artists have expounded their opinions, I never have listened to a person who would compare with the gentleman who has consented to address the coming convention. I consider his selection most fortunate. That person is Professor A. H. Griffith, director of the Detroit Museum of Art. His fame as an artist and a lecturer is wide. He needs no introduction to the photographers who attended the national meeting in Detroit, or the convention of the Michigan association last January. It is not within the gift of all to be able to tell how a pleasing picture is produced, or to dissect one to such an extent as to know why it does not please. Professor Griffith possesses that happy faculty, and his lectures before the coming convention will be among the most interesting features."

* * *

We understand from the Railroad Committee that efforts are being made to procure the same rates of fare on the railroads as obtained last year, which were as follows:

The following being the round-trip rates from points named:

Boston	$14 20	Pittsburgh	$7 00
Providence	14 20	Cleveland	4 25
Albany	9 53	Columbus	8 40
New York	12 00	Cincinnati	11 00
Philadelphia	13 07	Dayton	9 80
Baltimore	15 00	Detroit	6 75
Washington	16 80	Grand Rapids	11 58
Toronto	6 96	Chicago	12 00
Toronto, boat and railroad	5 55	St. Louis	17 75
Buffalo	2 75	Indianapolis	12 48

Information can be obtained in regard to rates from other points from local ticket agents.

The hotel rates will be as follows:

GREENHURST.

The Greenhurst	$2 50 per day.

LAKEWOOD.

The Kent House	$2 50 per day.
The Saratoga Cottage	2 00 " "
The Waldemere	2 50 " "
The Cowing Cottage	1 50 " "

JAMESTOWN.

The Sherman House	$2 00 to $2 50 per day.
The Humphrey House	2 00 to 3 00 " "
The Hayward House	1 50 per day.
The Everett House	2 00 " "

Please Note Correction.—The pictures must be in Convention Hall not later than the 10th of July, instead of the 12th, as formerly announced. This will give the Hanging Committee time to assort and hang by the opening day.

* * *

Photographers' Association of America,
office of the president.

Detroit, Mich., May 12, 1897.

Anthony's Bulletin,
591 Broadway, New York City.

Dear Sir,—Please find enclosed the following communication which you will please me by publishing. I have appointed R. P. Bellsmith, of Cincinnati, to fill the vacancy, and think it unnecessary for me to state the eminent qualifications this gentleman has for the place. I am sure the Association will be pleased with my action in the matter.

C. M. Hayes,
President of the National Photographers' Association.

Mr. C. M. Hayes,
President Photographers' Association of America,
Detroit, Mich.

Dear Mr. Hayes,—I sincerely regret that I am forced to herewith tender my resignation as Second Vice-President of the Photographers' Association of America. Our firm, however, have been selected as official photographers of the Tennessee Centennial Exposition which opened a week ago and will continue six months. We have a special building on the grounds, and, of course, the City gallery is unusually busy. It is absolutely necessary that I give it my entire time and attention, both from a standpoint of business and professional pride.

My relations with the Association and with all its officers and the Executive Committee since my election for that honor have been so uniformly pleasant that I greatly regret that it is necessary for me to sever the official relation, but could not give the time necessary to the performance of the duties involved. Will do anything I can, however, to push the meeting along.

Our Centennial Exposition, as a whole, is a most artistic creation, and no exposition ever gathered a better collection of American art. Our Association possibly could not attend in a body, but I hope to meet many of the members here during the summer.

Thanking you for many courtesies, and trusting that we both will be at the '98 meeting, I am

Yours sincerely,
W. G. Thuss.

NEBRASKA PHOTOGRAPHIC ASSOCIATION.

The Eighth Annual Convention of the Nebraska Photographic Association has just been held at Omaha, the meeting having been convened on the 5th with President W. D. Curry in the chair.

Acting Mayor Bingham extended a welcome to the Convention, after which President Curry delivered an address in which he advanced a plea for broader lines of good fellowship and co-effort, and urged unity of action and centralization of thought.

He also expressed the hope that the National Convention might meet in Omaha, in 1898. The balance of the first day was devoted to arranging and hanging exhibits, of which there were a considerable number. An art lecture on "Rembrandt" with slides of the artists' best pictures, filled the evening.

The second day opened with demonstrations and practical hints for the printing room by representatives of the American Aristotype Co., the reading of a paper from Mr. Abraham Bogardus, and the election of the following officers for 1897–98.

President	N. A. LANCASTER, of Omaha.
First Vice-President	GEO. KNOWLTON, of Lincoln.
Second Vice-President	M. ELLWINGER, of Rushville.
Secretary	W. P. FRITZ, of Fremont.
Treasurer	JAS. MATZEN, of Omaha.

It was decided to hold the next Annual Meeting at Omaha, and the Executive Committee was instructed to enter into correspondence with other State Conventions west of the Mississippi river, to induce as many as possible to meet with the Nebraska Association next year. In the afternoon the hall was open to the public for inspection of the exhibits and displays, prominent among which were those of the American Aristotype Co., and the Brown & Palmer Co. Members and friends of the Association were entertained in the evening by the Robt. Dempster Co.

Demonstrations and talks on the handling of Platino and Junior Papers, a talk by Mr. C. Hetherington, on the right and wrong way of posing, and the awarding of diplomas, one of which was given each exhibitor, with the rating of his exhibit noted thereon, filled the third day, and the Convention adjourned, after a most successful and helpful occasion.

THE UTILIZATION OF THE LIGHT WHICH PASSES THROUGH THE SENSITIVE FILM.*

CAPTAIN COLSON, in a recent communication to the *Société Française de Photographie*, pointed out that a great deal of light passes through the film, and this can be utilized, and thus the exposure in the camera reduced, if a reflecting surface be placed behind the plate. The idea, as the captain admits, is not new, but he has approached the subject from a somewhat new standpoint.

He points out that it is essential that the reflecting surface should be in immediate contact with the film, and that the image should fall on the plane of contact. This condition is essential for sharpness of definition and for the purity of the whites of the negatives, for a space between the two surfaces infallibly produces fog. It is also necessary to ensure that the plane of the focusing screen is coincident with that of the sensitive film.

A white surface, such as a sheet of white paper or card, is preferable to a polished metallic surface, in that the latter only reflects the light in particular directions, according to the well-known law that the angle of reflection is equal to the angle of incidence, whereas the card or paper diffuses the light in all directions, independent of the angle of incidence. The surface of the card ought be glossy.

The first trial of this plan was made by placing a piece of white paper and a piece of black in contact with the gelatine, with an exposure of one-fifteenth of a second. That part in contact with the white paper was much more intense than where in contact with the black.

The negatives made in this way are, of course, reversed as regards left and right, but this is no disadvantage for projection or for printing in carbon, or for photo-mechanical printing.

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* From *British Journal of Photography.*

The only disadvantage in presenting the glass to the lens is that there is a slight distortion of the image towards the center of the plate, due to the deviation of the rays, which strike the glass at an angle. Thus, assuming the refractive index of the glass to be 1.55, and the angle of incidence of the rays to be 30 degrees, which corresponds to an angle of view of 60 degrees, the distortion is equal to one-fourth of the thickness of the glass, so that with a glass 2 millimeters thick the distortion would be 0.5 millimeter, which, for scientific work, is far too great, but which is quite negligible for landscapes or portraiture. These figures only apply to the edges of the plate, and the longer the focus of the lens, the less the distortion.

There must be, of course, also some little loss of light, due to reflection from the front surface of the glass, and again from the second surface, and this loss increases from the center to the edges of the plate, but the effects are inappreciable, even with a large field of view.

It may be supposed that the light reflected in the interior of the glass would cause fog, but that this is not so, is proved by the fact that the whites remain clear.

To prove that the same intensifying action took place, even when the light was feeble, Colson copied a chromo-lithograph with a pinhole, and found that, with an aperture of $\frac{1}{100}$ inch, and a camera extension of 10 inches and an exposure of ten minutes, the use of a white card considerably intensified the negative.

In the case of celluloid films there is no loss by reflection, and it is unnecessary in consequence of the thinness of the support, to expose them from the back.

In the case of a paper support, it will be seen, from the above reasoning, that paper coated with the same emulsion as a glass plate should be more rapid than the latter.

ENLARGING BY THE SERUM OR WHEY PROCESS.

IN response to a number of inquiries that have lately been made regarding the process of enlarging by the serum or whey process, we reprint the following interesting formula from page 477 of the "Silver Sunbeam":

"The following is Mr. A. J. Drummond's process for enlarging prints, as practiced by him for some months with perfect success: First take 16 ounces of condensed milk, and dissolve in 48 ounces of boiling water; heat this solution to the boiling point, and add, drop by drop, 1 ounce of acetic acid No. 8, stirring gently all the time.

"Care should be taken not to break the curd, and when the serum is formed, decant in a porcelain dish, and allow it to cool. Then filter it carefully, after which the solution should look bright and clear.

"Iodize by the following formula:

Iodide of potassium	7 grains.
Bromide of potassium	5 "
Serum	1 ounce.

"Dissolve and filter as before, after which it is ready for use. Brush over the paper, with a wad of Canton flannel, a little of this solution, being particular that every part of the surface is covered. Hang up to dry away from dust.

"For sensitizing, use a solution of 30 grains of nitrate of silver to 1 ounce of water; place it in the sun until it becomes clear; then add a few drops of acetic acid, to preserve the lights of the picture.

"This should also be spread upon the paper with a wad of Canton flannel.

"For a developer I used the filtered solution of

Pyrogallic acid	48 grains.
Acetic acid No. 8	4 ounces.
Water	28 "

FIXING BATH.

Hyposulphite of soda	3 ounces.
Carbonate of ammonia	½ ounce.
Water	16 ounces.

"From time to time a little carbonate of ammonia should be added, as the bath is apt to be too acid.

"First focus the picture, then sensitize the paper and expose while wet, as the action of the iodide of silver is much quicker when in that state. The pictures should be seen plainly in the shadows. When printed and laid on a piece of glass, pour a little of the developer upon the middle of the paper, and spread it quickly over the paper, either with a glass rod or a wad of Canton flannel. The picture then slowly appears. When it is dark enough, immerse it in the fixing bath, and rub the surface with the palm of the hand to clear the paper of the developer. The picture does not lose any of its strength in the bath. Continue the use of the fixing bath until all yellowness of the picture has disappeared.

"I would also add that a little citrate of soda in solution, say, to the amount of a few drops in the sensitizing solution, will give the picture a warm tone; but, if much be added, the picture will print more slowly. A very intense negative can be printed much quicker by using 3 ounces of water to 1 ounce of serum iodizer; this is, however, at the expense of the picture. I hope all who are interested in enlarging by the use of the lime or electric light will try this simple process and report for the benefit of non-believers respecting the pictures developed by it.

"The advantage I claim in using condensed milk is that it gives the picture a richer tone."

WHAT DESTROYS GELATINE NEGATIVES?

By Dr. E. Vogel.

GELATINE negatives, if properly treated, are very durable, provided that they are kept in a dry place, to prevent their being attacked by dampness.

Still we frequently see negatives whose film has a yellow or brownish color, which renders them completely useless. The cause of this appearance is generally ascribed to defective washing out of the fixing soda, but without reason, as shown by the following experiment:

If a gelatine negative is fixed until all bromide has dissolved and is then washed thoroughly for an hour, a yellow coloration of the negative will still be observed after a few days, which passes gradually into brown. This coloration shows itself particularly on slowly fixing plates with a thick film, especially when they are exposed to light. If, on the contrary, a negative is thoroughly fixed, which is done by leaving the same in the bath for at least twenty to thirty minutes, after all the bromide of silver has dissolved, or, still better, placing it into a fresh fixing bath, after the fixing has apparently been completed, a durable negative will be obtained, even after short washing from ten to fifteen minutes. The spoiling of the negative is therefore not caused by imperfect washing, but by imperfect fixing, and the yellow coloration of badly fixed negatives has its origin in the hyposulphite of silver which forms during fixing and remains in the film, because it is almost insoluble in water, and decomposes after a short time, thus forming sulphate of silver.

With prolonged fixing, particularly in fresh fixing solution, the hyposulphite of silver gives, with the hyposulphite of soda in excess, a double salt, which dissolves easily in water, and can therefore be removed by relatively short washing.

Thorough fixing in fresh hyposulphite of soda solution, or, still better, application of a second fixing bath, into which the negatives, apparently fixed in the first bath, are placed and allowed to remain from fifteen to twenty minutes, has therefore been frequently recommended, and nothing better can be advised.

The yellow coloration, which takes place in intensifying with bichloride of mercury, is also avoided by this treatment.

That hyposulphite of soda is not the cause of the yellow coloration of gelatine negatives can easily be proven by bathing a finished negative in a fresh hyposulphite of soda solution, and letting it dry without washing. The fixing soda crystallizes, but will cause no yellow or brown coloration of the negative, even after the lapse of a long time. The same conditions we find in bromide of silver gelatine paper pictures. Thorough fixing is here also of more importance than thorough washing.

Translated by

Henry Dietrich.

THE CAUSE OF THE FORMATION OF THE LATENT IMAGE ON GELATINO-BROMIDE PLATES.*

By Prof. G. Lagermarc.

THERE is hardly any other practical application of scientific discovery which has developed so entirely empirically as photography. Most of the notable improvements were the results of accidental observations, worked out empirically. The nature of the chemical processes occurring in photographic operations, the reactions going on during development, toning, etc., are little known, they were never completely investigated, quantitatively or qualitatively, and the scientific solution of the chemical problems involved has been barely attempted. Meanwhile, it is these problems which present the greatest interest and the richest field of discovery for the future investigator. It can be said without exaggeration that photographic chemistry has not yet begun, as the fragmentary knowledge we possess can hardly claim the name of science, uniting a large number of facts into one harmonious whole.

As the principal question, we take the action of light on the sensitive plate. The cause of the formation of the latent image remains still a mystery, notwithstanding many attempts to explain it. Some of the investigators who have studied the question have come to the conclusion that the action of light on the sensitive plate produces some peculiar chemical process, described rather vaguely as a kind of migration of atoms of bromine from one molecule to another.† Other experimenters suppose that, under the action of light on gelatino-bromide plates, the bromine is liberated, with formation of lower compounds of bromine and silver, compounds which are never isolated in a pure state, and never obtained by other means. Meanwhile, bromide of silver is known to belong to the most stable compounds, and during the short time necessary to produce the latent image there is no decomposition. In the chloride, as well as in bromide of silver, decomposition occurs only after prolonged exposure, with liberation of chlorine or bromine.‡ As regards the iodide of silver, which is known to give also a latent image, the liberation of iodine was never observed, even after a prolonged exposure. It would seem, therefore, that the explanation of the latent image by a partial decomposition of the haloid salts of silver is not founded on facts. Neither is there reason to suppose that the action of light produces some isomeric (in the chemical sense of the word) modification of silver bromide ; the isomeric changes, as far as it is known, occur only in more complex molecules, and there is no reason to apply to a single case a hypothesis inapplicable to all other analogous compounds.

Some men of science admit as the cause of the latent image a special state of silver bromide, produced by the action of light and the absorption of light energy. According to this theory, the energy of light is absorbed by the bromide, the molecular motion is increased, and the molecule comes into a kind of loosened state, a state of incipient decomposition.§ In other words, according to this view, the silver bromide submitted to the action of light is in the incubation period of its decomposition, and remains in this state until the developer, chemically reacting with bromine, is applied, and metallic silver reduced. This explanation of the formation of the latent image cannot support a critical examination, as it is categorically refuted by existing scientific data. Not to mention that the time of exposure necessary to obtain the photographic image on modern rapid plates is too short to produce the combination or decomposition of the most easily reacting bodies, the principal objection to the foregoing view is found in the fact that, the potential state induced by the action of a physical agent and preceding the reaction rapidly disappears on withdrawal of the agent before the beginning of the reaction, and the bodies return to the original state. Meanwhile it is known that a gelatino-bromide plate exposed in a camera and having a latent image, can be developed years after exposure.

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* *British Journal of Photography*, April 9, 1897.

† Liesegang, *Photographic Chemistry.*

‡ H. Vogel. *Handbuch der Photographie*, I Th. 133, 168.

§ De la Baume Pluvinel, *Théorie des Procédés photographiques*, p. 32.

Analyzing the chemical side of the phenomena, we are forcibly led to the conclusion that the process of formation of the latent image is essentially different from all known chemical processes, and that the cause of the formation of the latent image does not lie in the chemical changes of the matter. Equally unsatisfactory are other existing hypotheses, explaining the cause of the formation of the latent image.

It seems to me that this formation can be explained on the ground of existing scientific data without having recourse to new hypotheses.

It is known that light and some other forces have the characteristic property of producing changes in the molecular state of many bodies. From many facts relating to the subject, I shall only mention here the well-known researches of Schrötter on the change of white phosphorus into the red variety under the influence of light, and the investigations of Lallemand[*] on the crystallization from the solution in carbon bisulphide of a little soluble form of sulphur.

Taking into consideration these and some other analogous facts, we can admit most easily that the action of light on gelatino-bromide plates consists in the transformation of the amorphous into the crystalline bromide of silver.

In fact, silver bromide, precipitated in the dark and carefully washed, is not changed by the usual developers, while the same bromide, fused in the dark, crystallizes on cooling and is easily reduced. There is no need to fuse the salt, the transformation taking place at a much lower temperature. Immersed in boiling water, in the dark, the silver bromide is easily reduced by developers, without exposure to light, evidently in consequence of its passing into the crystalline state at the temperature of boiling water.

Desiring to prove the fact of the crystallization of silver bromide under the influence of light, I examined the action of light on the solution of amorphous silver bromide, precipitated in the dark, at a low temperature, and with all necessary precautions. I hoped to obtain by these means the separation from the solution of the less soluble crystalline bromide, as in the experiments of Lallemand. The arrangement of the experiment was similar to that of Lallemand's. The solution was placed in a glass vessel with flat, parallel sides, and a beam of light was thrown on it by means of a lens.

As is known, bromide of silver belongs to the category of difficultly soluble bodies, and there are only very few liquids which can be used for its solution. The greater part of these solvents react on silver bromide by double decomposition, or by forming with it new molecular combinations. To the first type belong ammonia and hyposulphite of soda; to the second, thiosinamine and thiourea. Of all the bodies which could dissolve silver bromide without reacting with it, the most convenient appeared to be the salts of mercuric oxide and hydrobromic acid. According to the investigations of M. H. Debray,[†] the solution of mercuric nitrate easily dissolves bromide of silver. Debray supposed also that other mercuric salts have the same property. In my own experiments I have found that silver bromide dissolves pretty easily in an aqueous solution of mercuric bromide ($AgBr_2$), in mercuric nitrate and mercuric acetate; but from these solutions I did not succeed in separating the crystals of silver bromide, as the mercuric bromide and acetate are decomposed by light. Silver bromide dissolves also easily in the 50 per cent. solution of hydrobromic acid, most of the salt separating on dilution with water. This solution, prepared in the dark, was placed in the parallel-sided vessel, and a pencil of sunlight was directed on it by a lens. The transparent solution soon became cloudy in the path of the rays, the rest of the solution remaining transparent; but, even with long exposures, I could not obtain the separation of the crystals; the solution, after standing for some time, became transparent again. Probably the crystals are not separated, because the solubilities of the amorphous and crystalline bromide in hydrobromic acid are nearly equal.

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[*] *Comptes Rendus*, lxx, p. 182 (1870).

[†] *Comptes Rendus*, lxx, p. 995.

THE NEW "STIGMATIC" LENS (*f-6*).

By Thomas R. Dallmeyer.

THE following paper, which was recently read before the Royal Photographic Society of Great Britain, we are glad to publish in full, as it has such a direct bearing on a question that is bound to interest every photographer :

The optical properties of certain of the glasses manufactured at Jena, now at the disposal of opticians, are probably now so well known to all interested in optical research, that it is hardly necessary to refer to them again at any length before the members of this society. The old glasses, known as "crowns" and "flints," on account of a certain invariable characteristic, conveyed to the mind that a "crown" was invariably a converging lens, and a "flint" a dispersing lens. This was necessitated by the fact that, in these older kinds of glass, the higher the refractive index of the glass, the higher was the dispersive power. So long as this condition obtained, opticians had to use their utmost skill in arriving at the best compromise between the elimination of the two inherent defects, curvature of field and astigmatism in the lenses they constructed. These older kinds of glass allowed, however, of a fine correction for spherical aberration, with a high ratio of aperture to focal length. The classic work of Petzval in this direction will always live in the history of the subject, and appeal to the admiration of every earnest student.

The eminent experimental work in glass manufacture conducted at Jena, and the valuable results arrived at, have now been known for some some years. "Crown" and "flint" no longer retain their old significance, and differ from the still indispensable older kinds manufactured by Messrs. Chance, of Birmingham. Dr. Hopkinson, when advising the firm, rendered very valuable aid in making special glasses, and to-day Mr. Stobart is devoting much attention to a still greater choice. I make this digression, for, although in all scientific work jealousy happily does not exist, I venture to think that, if technical investigation had been and was as strongly supported in this country as in Germany, the remunerative industry of optical glass-making need not have had to take second honors.

Briefly, we now have at our disposal glass that has a higher refractive index than another, but, at the same time, lower dispersive power, and we have to thank Professor Abbé, and Messrs. Schott & Co., of Jena, for this valuable addition to our resources. This possibility opened an entirely new field in optical research. Opticians saw at once their way to eliminate the error of "astigmatism," and at the same time to arrive at what is known as a "flat field," or to eliminate "curvature of field."

Many individual brains were at work when the new material was obtainable, and many were the heartburns at one worker antedating another at the Patent Office in work he could never get at least credit for.

The first to publish and patent a lens necessitating and utilizing the employment of the new glass was Dr. Schroeder in his "Concentric" lens, a lens that well merited its cordial reception. Its only fault lies in its low intensity, the properties of the new glass being such as to prohibit the same "angular apertures" as are obtained with the older glasses, employing only two kinds of glass in a symmetrical form, though it is unaccompanied by the inherent defects involved in using the latter referred to above. Following this lens, other workers have taken advantage of both new and old glasses in their different lens systems, and constructed various forms in which each combination of the lens consists of three, four and even five lenses cemented together. These include the production of lenses by Messrs. Zeiss, Von Högh (Goerz), Voigtländer, and others. The angular apertures of these constructions are known to you.

The construction of my colleague's lens, the "Stigmatic," differs essentially from the work accomplished by our foreign contemporaries.

In March of last year Mr. Aldis described to you in his paper how he had arrived at the construction of a "portrait lens" with an aperture of *f*-4, practically free from astigmatism and curvature of field, and dealt pretty fully with the question of "astigmatism."

It is not necessary to traverse this ground again, but he made reference then to the work (Sir G. B. Airy on the spherical aberration of eyepieces), the only available work at present published in the English language, dealing with the constructing of lens systems with a flat field free from astigmatic aberrations of the marginal pencils.

In this communication to the *Philosophical Transactions of the Royal Society*, Sir George Airy gives as the necessary condition for a system of very thin lenses ranged along a common axis as

$$\frac{f_1}{\mu_1} + \frac{f_2}{\mu_2} + \text{etc.}, = 0$$

where f_1, f_2, etc., are the focal lengths of the component lenses, and μ_1, μ_2, etc., the refractive indices of the glasses of which they are composed. Sir George does not seem to have investigated any means of satisfying this condition; on the other hand, he would appear to assume that it cannot be satisfied, as indeed is practically the case in the particular case under his notice, viz., eyepieces for telescopes and microscopes.

Fortunately, however, in the case of photographic lenses, this condition can be more successfully fulfilled, though with increasing difficulty as the ratio of aperture to focal length is made greater.

It should be noted that the form of this condition has to be altered when the thickness of the component lenses is allowed for, but the general effect of this condition is that to obtain "flatness of field" without astigmatism in general requires the use of converging or positive lenses of high refractive index and diverging or negative-shaped lenses of low refractive index. This, however, as referred to before, introduces difficulty into the correction for spherical aberration, which in general requires the use of the older glasses, or negative lenses of high, and positive lenses of low, dispersive power—the exact opposite of the former.

In most "anastigmatic" lenses hitherto constructed, the correction for spherical aberration has been arrived at by the employment in part of the construction of a negative lens of high refraction, combined with a positive lens of low refraction, thereby prejudicing the correction for "astigmatism." In the Stigmatic lens shown to-night the converging lenses are throughout of high refractive power, and the diverging lenses of low refractive power (the point in which Mr. Aldis's lens differs from any hitherto constructed), while the correction for spherical aberration is given by a small (convex meniscus) air space in the back lens, very much on the same principle of my late father's "patent" portrait lens introduced in 1866. By this means the correction for astigmatism can be very completely carried out, even in lenses of very high intensity, viz., in the Stigmatic *f*-4, as has been already shown at this Society.

The form of the lens *f*-6 I call to your notice this evening differs somewhat from the Stigmatic portrait form at *f*-4 and covers a circle of illumination about 25 degrees more, viz., 85 degrees as against 60 degrees. Over the complete angle of 85 degrees the deviations from perfect flatness are most minute, so that the lens may be either used at full aperture, *f*-6, for all classes of instantaneous work, both indoor and outdoor, over a plate whose diagonal equals the focal length of the lens (a size which is found in practice to include an angle sufficiently large to give the best effects of perspective), or with slight stopping down to secure even illumination over plates whose diagonal is nearly twice the focal length—a size of plate relatively large enough for most wide-angle work, in either case with perfect marginal definition.

I submit examples of work done by the lens to your notice. My friend, Mr. Kapteyn, was kind enough to allow me to avail myself of his very perfect testing arrangements.

The lens tested by Mr. Kapteyn and myself was one of 7.6 inches focus, constructed for use under ordinary circumstances upon the half-plate. The tests were made upon 12 by 10 plates. You will see, from the negatives or prints that a considerably larger plate than the half-plate is perfectly covered at the full aperture *f*-6, and you can also observe the effect of "stopping down."

I show you Mr. Kapteyn's method of comparing the effect of the use of the diaphragm at four different intensities on one plate, at the same time making the test apply to the performance of the lens over the entire plate and not only one-fourth of it. It is a particularly pretty way of carrying out these tests, even if it should prove that it is not new. Personally, I am much indebted to Mr. Kapteyn for the very excellent work he has done towards simple and accurate methods of practical lens-testing.

You will observe that little if any benefit is derived from the use of the diaphragm over the 10 by 8 plate except as regards equality of illumination; the 12 by 10 plate is well defined at *f*-22, and I did not think after the equality of illumination shown at *f*-32 over the 12 by 10 plate, that it was necessary to exhibit plates taken with smaller stops.

The front combination of the lens can be used alone with the stop in front, forming a good "narrow angle" lens working at about *f*-20 on the half-plate, the focus being about half as long again as the entire combination. In the lens, then you have: (1) great rapidity and absolute definition over a plate, including an angle generally chosen for most subjects; (2) the possibility of using the lens on much larger plates as a "wide angle" lens with but moderate stopping down; and (3), the possibility of using the front combination as a single lens, giving a "narrow angle" upon the size of plate for which it is constructed as an optical system in its entirety.

I show you the difference in detail in the constructions of the *f*-4 and *f*-6 "Stigmatic" lenses. The latter is of great simplicity. The whole consists of a five-lens combination. The front combination consists of two lenses cemented together, the outer one a double convex lens of heavy baryta crown, and a double concave lens of light silicate flint. The back combination consists of three lenses, two of which are cemented. Inside is a double flint lens of light silicate flint cemented to a double convex of heavy baryta crown, and behind these, with a small air space, a meniscus flint also of a light silicate flint.

From the manufacturers' point of view, these double convex and double concave glasses are more readily worked and much easier to center than the deep meniscus glasses used in other forms of lenses.

Another and important feature is that the lens has no "zones." That is to say, if focused with full aperture, no readjustment in focusing is required if a smaller diaphragm be necessary to obtain "depth of focus."

CARE OF THE LENS.

A WRITER in the *Photographic News* of April 30th, in speaking of the deterioration of a photographic lens, says:

"It may not be generally known that compound lenses are liable to serious injury if kept in a damp place for any considerable time. The writer had this fact recently brought painfully home. The object-glass of a valuable microscope was found to be thus damaged, and thereby rendered comparatively valueless. And, so we say, want of proper care and thought may produce a like result to the lens of a camera. But, inasmuch as the lens is most important, it is obvious that every care possible should be bestowed on its treatment. The danger, however, is, that the mischief referred to may be going on unnoticed, and becoming worse and worse. Let operators, therefore, look to their lenses. After the winter's rest, and with all the damp weather of the past, it will be no wonder if some wreck will show up. The disease —if it may be so called—usually commences by very minute spots, occurring apparently upon the face of the lens, though, in reality, lying in the cement between the component glasses forming the lens proper. They may, indeed, be so small as to require a small magnifying glass to see them at all. But, being of a fungoid nature, their growth is rapid, and, once there, nothing short of drastic measures can eradicate them. The only resource, therefore, is to place the lens in the hands of a reliable optician, have all the suspected glasses taken to pieces, and thoroughly cleaned and recemented. Another hint may, perhaps, be given as to the matter of cleaning or dusting the lens. Never use anything harsh or stiffened with starch. The best thing to use for this purpose is a piece of old soft cotton rag that has been well washed and freed from soap. By this means scratches will be avoided on the lens, Keep this rag and the lens in a bag together made of chamois leather. Should the component parts of the lens be separated, it is scarcely necessary to say they must be replaced in the same order as originally."

DIRECT POSITIVES IN THE CAMERA.

A VERY curious and interesting matter has lately been brought up by the experience of an amateur, or rather a beginner in photography, who has sent to the BULLETIN the results of four exposures and development of the same subject, under practically the same conditions excepting as to the time, in which he obtained the rather remarkable result of three direct positives out of the four exposures. Two of these are pretty badly fogged and worthless, but the positive effect is pronounced and unmistakable, while the third, which had an exposure of one minute and fifteen seconds with fairly large stop in full open daylight, presents a clean-cut and perfect transparency effect. We have known of such cases being reported, but this is the first that has come directly to our notice. Several inquiries have been made since the plates were received, but very few with whom we have spoken have experienced this same result, though many say they have heard of it.

Mr. D. L. Elmendorf speaks of one case in his own experience where two exposures made of the same subject under precisely the same conditions of lighting and timing produced one a positive and the other a negative, although both were developed in the same tray at the same time.

Direct positives are said to be obtainable by extreme over-exposure or by special treatment in development, an interesting article by Colonel Waterhouse on this subject having been published in the "International Annual" for 1891, Vol. IV, page 396, but we believe it is not a common occurrence to find them resulting from the treatment provided for negatives, with only the difference in time of exposure referred to above.

The BULLETIN will be very glad to have the experiences of any of its readers who may have had occasion to notice similar results.

X RAYS AND PHOTOGRAPHIC COMPOUNDS; SOME RESEARCHES IN FLUORESCENT ACTION.*

By V. E. Johnson, M. A.

IT is a well-known fact that when what have been termed the X rays fall upon certain chemical compounds they, by their stimulating action, cause them to emit a visible radiation to which the term fluorescence has been applied, the best known of such substances being sundry platino-cyanide salts, together with calcium tungstate and certain uranyl compounds—the best known because the most brilliant. The total number of bodies which fluoresce more or less under the stimulating action of the X rays is, however, very great, and increases, one might say, from day to day, so that it does not follow that that particular substance or compound which fluoresces with the maximum of brilliancy has as yet been discovered, although in the best screens undoubtedly a very large percentage of X-ray energy is transformed, as is easily seen by placing two screens partly overlapping in contact, and observing the difference in illumination between the overlapping and non-overlapping parts, although this same difference may be due to another cause, as will be apparent later. It was not, however, with the intention of discovering, if possible, the most brilliant fluorescent substance, but, rather, with the idea of gaining some knowledge with respect to the subject of fluorescence in general that the following experiments, which led into many by-paths, were undertaken, the chemical compounds, etc., used in photography being chosen in preference, as being ready to hand and of the greatest personal interest. It is to be hoped that the following brief account will be the means of inducing others who have not already done so to enter this fascinating field of research. The experiments were made with great care, in an absolutely dark room, with the Crookes tube (the ordinary focus pattern) completely encased in an opaque material, special measures being taken to completely screen off all light from the coil, such as that given off by the spark of the contact breaker, brush discharge, etc. The spark used was a 6-inch one. The substances tried were in all cases, when necessary, ground to a powder in a pestle and mortar, and dusted on to a piece of black cardboard through a fine sieve, no tacky substance, such as gum, collodion, etc., being used, nor was necessary, and was avoided by simply turning the tube round in such a fashion that the face of the platinum anode pointed upwards instead of sideways or downwards. Thus there was no waste of material. The pieces of cardboard dusted with the substance were held horizontally over the tube, and the chemicals returned to their respective bottles when done with. Much time and waste are obviated by this simple device, and possible errors arising from the presence of the tacky substance are avoided. The fluorescence, in many cases, was very faint, though not to be mistaken. A less powerful apparatus would probably give more negative and less positive results, and a more powerful one the opposite. Much, too, depends upon the physical nature of the body tried, but more of that anon. The substances tried with a negative result were the following: Pyrogallic acid, alum (powdered), barium nitrate, collodion, lead acetate, mercury bichloride, caustic potash, sodium hyposulphite, glue, gum arabic, Epsom salts, potassium cyanide, potassium ferricyanide (solution), potassium ferrocyanide (solution), citric acid, sodium sulphite, sodium carbonate, tartaric acid, uric acid, borax, calcium sulphide (non-crystallized), uranium oxide, silver nitrate, chloride of silver, bromide of silver, and grape sugar.

The positive results were bromide of potassium, uranium, nitrate, ammonium bromide, sodium acetate, sodium bicarbonate, chloride of sodium, mercury persulphate, chloride of gold, fluoride of potassium, hydroquinone, metol, amidol (very faint), potassium chloride, potassium nitrate, potassium iodide, barium sulphide, fluoride of ammonium, calcium chloride. Potassium bromide was the most brilliant. The fact that the silver salts did not fluoresce led to an examination of the fluorescent action of glass. Glass of all kinds was found to fluoresce irrespective of shape, whether in the form of a plain sheet, a bottle, a prism, a lens, or a salt cellar of very irregular shape. That the shape made no difference was at once apparent, how-

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* *Photography*, April 29, 1897.

ever, from the fact that the fluorescence was always and only on that side of the glass next to the Crookes tube. A bottle illustrated this very strikingly.

An ordinary photographic plate was found to fluoresce with sufficient distinctness to roughly make out the bones in one's hand. On removing the film from the glass the film still fluoresced, although not quite so brilliantly as the glass plate without the film.

The fact previously noticed, the non-fluorescence of the silver salts, led to an examination to discover the degree of fluorescence of gelatine and albumen. With respect to certain kinds, both were found to be fluorescent. A piece of collodio-chloride printing paper and a piece of unsensitized ordinary albumenized paper were found to be almost as brilliant as the photographic plate. A piece of bromide paper showed no trace of fluorescence. Celluloid was found to be fluorescent, although not so brilliantly so as glass.

From these results it would appear that the fluorescence exhibited in the photographic plate is caused not (as has previously been supposed) by the fluorescence of the silver salts, but by the fluorescence of the substratum and support.

Various conclusions were drawn from these and many other experiments on this same mysterious and but little understood subject of fluorescence, which may be here noted, as they may serve as a guide, more or less, to other future workers in the same field of research :

(1) The fluorescence of the substance is always on that side nearest the vacuum tube. This is well illustrated in the following cases: A glass bottle and a china saucer (the thicker portion on which the saucer stands appearing as a dark ring through the milky, transparent whiteness of the whole). An unevenly dusted screen of some substance, non-transparent to light, such as calcium tungstate, also exhibits this well—the thickly dusted portion appearing dark, the converted light rays from underneath (supposing the screen horizontal, fluorescent side uppermost) not being able to pierce the upper layers.

(2) An increase of fluorescent material is not necessarily an increase of brilliancy, but in time the reverse. A layer of non-crystallized calcium tungstate a $\frac{1}{4}$ of an inch thick shows no fluorescence ; a similar layer of uranium nitrate fluoresces well. A very thin layer of this same calcium tungstate fluoresces brilliantly.

(3) The substance should be in such a condition as to be as transparent (to light) as possible, and therefore (other reasons apart) a crystalline state is preferable.

For a good fluorescent screen, it is also evident that the substance on which the fluorescent material is coated should be as transparent to the X rays as is possible, and that the coating of the screen should be as close as possible, so that no rays should pass through without filtration. If a tacky substance be employed, it would appear that it should possess, as far as possible, the characteristics of the fluorescent salt.

Among odds and ends that fluoresce under X-ray stimulation may be mentioned powdered lump sugar, salt and paraffin candles. Both transparent and opaque (to X-ray radiation) substances fluoresce. Many such could be quoted, but two of the most familiar are, perhaps, paste (chiefly lead glass opaque) and diamonds. Generally speaking, however, opaque bodies fluoresce the more brilliantly. It should be noted that glass is an amorphous body.

Genuine solutions of fluorescent substances (potassium bromide, for example) are non-fluorescent. Chloride of gold solution is, however, fluorescent; ordinary powdered sulphur, non-fluorescent, but powdered roll sulphur fluorescent. Solutions must obviously be examined in a transparent non-fluorescent containing vessel.

As to whether the X rays exert any action of a primary character upon the silver salts, seems much open to question. In any case, it is of an extremely feeble character, and that we have in the silver salts the best sensitive recorder of X-ray action, seems most unlikely, although, of course, the unique power possessed by them of being so susceptible to rapid development, when their altered molecules are but few in number, is an advantage which could only be surpassed by some power of a like character possessed by another salt more susceptible to X ray energy.

PHOTOGRAVURE PRINTING FOR AMATEURS.

By Rev. F. C. Lambert.

THE subject of printing intaglio plates, made by the etching of a copper plate, with the aid of a gelatine resist, usually known as the photogravure process, was brought before the Royal Photographic Society of Great Britain in a lecture demonstrated recently by Mr. H. Wilmer, the honorable Secretary of the Society. The subject is one which has for long interested the present writer, who is therefore moved to offer a few remarks based upon many experiments and not a few failures. It may be said at the outset that what knowledge he has gained has been almost entirely by trying various experiments at home. Further, it may also be said that it is a matter of no little surprise that this process has not attracted a greater number of amateur workers than it hitherto has done, for it is certainly one giving very great—indeed, exceptional—facilities for the expression of personality, and it is eminently flexible at various stages. The probable reason why it has not been more widely taken up, perhaps, is that it is not sufficiently well known, or is thought to be one of very great initial difficulty. Possibly, then, these few notes of personal experience may help to remove some of the atmosphere of mystery and tempt some reader to give the process a little closer thought or personal attention. Starting, then, with the supposition that we have made a plate, let us examine it. We see the image very well all over its surface. In those parts which in Nature correspond to the highest lights, edges of clouds, collar in a portrait, etc., we see a patch of bright copper. In the parts corresponding to the deepest shadows a small hand magnifier shows us a great number of rather deep depressions, and in the half-tone portions of the picture there are also the same or similar depressions, but not so deep. In fact, the depth of the holes approximately corresponds to the darkness of the parts they represent. A second glance shows us that in these portions showing these holes we have not simply a patch scooped out as a lake would be scooped out of the surface of a plain, but in the lake are a vast number of little, narrow pillars of metal, whose tops just about reach to water-level. Briefly put, the printing consists in covering the whole surface of the plate with printing ink of a treacle-like consistency, and by means of a pad working the ink into the depressions, then wiping away all, or very nearly all, of the ink which is not in the depressions. Paper is pressed in contact with the plate. The ink sticks to the paper and comes out of the holes. The deeper the holes, the more ink and the darker the patch.

About the little pillars of copper standing up in the etched-out portions. Now, if it were not for these little pillars, the ink would be wiped out of the depressions. They form little pits and prevent the wiping rag taking away more than what is on their level summits. Suppose, then, we have such a plate ready for printing, we may proceed as follows: First, the ink. This may be bought in small tins from copper-plate printers, or it may be mixed as required. The dry color is ground (with a marble or glass muller on a similar slab) into the finest possible powder. A few drops of burnt linseed oil (this may be bought ready for use) is mixed with it, and the grinding continued until a "treacley" cream is produced—quite free from the least trace of grit when worked about with a palette knife on the stone.

The oil is usually sold in three consistencies—strong (*i. e.*, stiff), middle and weak. The dry colors generally used are ivory black, sienna, raw and burnt, and umber burnt. Various blue, green and red inks may also be bought for this purpose.

The dabber is the name of the thing used for applying the ink to the plate. To make this, cut a strip of "blanket," say a yard or so long and 3 to 6 inches wide, according to fancy. Now roll this strip into a sausage shape, having all the raw edges exactly over each other, so that the end forms a kind of round, soft brush. This is tied round the middle portion with two or three turns of string, the ends just slightly singed to get rid of loose hairs, and then well worked into the ink.

Inking the Plate.—The plate is first slightly warmed. This is done by placing it on a small metal stand called the heater, or one may be extemporized by means of a bit of sheet-iron, a couple of bricks, and a gas flame or lamp underneath. The plate is warmed to about as warm as is comfortable for the hand to bear. Unless the ink used is very stiff, it never need be made hot enough to be uncomfortable. The plate is now moved from the heater to the jigger; this is simply a little table or board at a comfortable height for inking and wiping, in the plate. The plate, having been warmed, is now on the jigger or table. The dabber is charged with ink by dabbing it on the ink slab with a rocking, cradle-like movement. It is in the same way rocked all over the plate. N. B.—The plate must not be wiped or brushed with the ink dabber, but a swinging sort of motion, by turning the upper part of the hand first to the right and then the left, at the same time, with a creeping motion, the ink is worked well into the depressions all over the plate. By this time the plate has got a little cooler, and the ink a little stiffer.

Wiping the Plate.—This is generally done in three stages. First, a fine, rather stiff, canvas is used. A piece, say half a yard square, is folded up to something about the size of the hand, and held somewhat like a duster, with the flat surface outwards, and the edges folded inwards towards the palm. The plate, resting on the jigger towards one corner, is prevented from slipping about by the forefinger and thumb of the left hand, which rest against its two nearest edges. The canvas is now gently wiped over the plate from the edges towards the center, the plate being turned round and round at every stroke or so. Then, when the canvas has taken most of the ink off the plate, we take a similar wiper of soft muslin (old muslin frocks that have been well washed are just the best thing possible), and continue the wiping in the same way until the plate looks clean. If the muslin is found to cling too much to the plate, it may be warmed by just resting on the heater for a second or two. Now, after cleaning with the muslin comes the final hand wiping. This is not easy to put in words, but may be shown in a minute. However, this is how it is done: First, the palm of the right hand is lightly rubbed over a piece of whiting, and is well rubbed into the lines of the skin, and the free whiting rubbed off with a rag. This little tip greatly helps in the subsequent cleaning of the hands. Next, with the ink dabber, a little ink is applied to the hand, more especially about the ball of the thumb and outer edge of the palm. This is now wiped with the canvas. We have now a hand slightly, but none the less evenly, coated with ink. In this stage, the plate being just slightly rewarmed, the surface of the plate is lightly wiped with the inky hand. Now, strange as it may sound, the hand on which is this slight layer of ink cleans a plate better than does a quite clean hand. But the ink on the hand must not be too much or too little; the quantity becomes a matter of instinct, depending upon stiffness of ink, warmth of plate, etc. When the hand gets over charged, it is partly cleaned with a bit of fresh canvas, and a rub on the block of whiting. Finally, the margins of the plate have to be cleaned. For this it is convenient to use a bit of rather stiff, yet soft, rag, a bit of an old sheet does well, or one may use a bit of wash leather. They are first wiped all round with rag only, using the edge of the thumb covered with rag for wiping, and the forefinger as a guide, so as to keep to the lines, and then gone over a second time with a little dry whiting on the rag. This gives a very clean surface.

Printing the plate now follows. This is done by placing paper in contact with it, and subjecting the plate and paper to some pressure. The press generally used consists essentially of a flat piece of metal (or wood), which moves to and fro between a pair of metal rollers. The inked plate, again slightly warmed, is laid, face upwards, on the metal plate, on a sheet of card or zinc, which in turn rests on the metal plate or bed. A piece of paper duly damped is placed in contact with the inked plate. Then a layer of fronting, *i. e.*, a fine kind of blanket made for this purpose covers the paper; then a piece of less fine blanket, *i. e.*, middles, and finally a still more elastic blanket. The whole party of plate, paper, fronting, middles and blanket, now go through the press together with an even, steady motion, and as the cylinder presses along the paper, it forces it into very close contact with the plate, and the ink is lifted out of the plate and sticks to the paper. The pressure of the soft paper on the plate indents it with a plate-mark. The paper is now lifted at one corner and gently raised from the plate, and comes away a print or "proof." It is now hung up or laid flat to dry and finish.

The paper to be used is paper made for ink printing purposes, *i. e.*, of an absorbing character, with very little, if any, size. Of the choice of papers there is a great range, not only in tint, from pink cream to white, but also in surface, from rough to smooth, and stoutness, from card to tissue. India and Japanese papers give admirable prints.

Damping the Paper.—The degree of dampness is a very important factor in the result. The damping is done in various ways, but usually as follows : The paper being cut up to size, two, three or more sheets (according to the stoutness, absorbing powers, etc.) of the paper are together slowly drawn through a vessel containing cold water, and then laid in piles one on top of another batch, under pressure, *i. e.*, sheets of stout glass or metal. The two outside sheets are at first most wetted, but they pass on moisture to those in between, so that in a few hours all the sheets are evenly damped. The thinner papers are best damped by laying them singly between damp blotting paper and subjecting to pressure. The very stout card-like papers are damped by floating on water singly for a few seconds and are then laid in piles under pressure. Note that in very nearly all the papers there is a right and wrong side. The wrong side is the one which shows the wire webbing marks most.

In a brief note like this there are, of course, many little matters which must be passed over, for it is only intended to be a sort of first aid to those who wish to try printing their own plates. It may, therefore, be as well to summarize some of the more important factors which are at hand in modifying results. For perhaps in no photographic process are there so many chances for altering the tones, etc., of the final result.

1. The etching of the plate. It is obvious that in the making of the positive, depth of printing and degree of developing it on the copper, relative tones and strengths of the etching baths, there is much room for the exercise of taste and personality. But this must be passed over in the present article.

2. The strength, consistency and color of the ink, are again factors of importance. A strong, *i. e.*, stiff, ink contains more color for the same depth of plate etching. Thus a shallow plate needs a stronger ink, and so on. Or, again, the ink may be somewhat modified locally.

3. The wiping of the plate may be compared to the painting of the picture. In fact, one of the lessons the self-taught beginner first learns is, that he does not get two pulls or prints alike for a long time, for it is not easy to see the small amount of ink necessary for printing the lighter tones that has to be left on the plate.

4. The temperature of the plate reacts upon the consistency of the ink, and this not only affects the quantity put on, but also enters largely into the quantity left on the plate after wiping.

5. The surface, softness, stoutness and dampness of the paper, are again factors which have to be reckoned with.

6. The printing also is affected by the temperature of the plate and the pressure employed.

But as soon as the different effects of these factors are seen, and they are fairly quickly recognizable, then the real pleasure of the process begins, for the printer feels that it is possible—and therefore well worth trying—to do anything he likes with the plate. What can be done in the handling of the plate, *i. e.*, wiping, is as much a new sensation in itself as is that of watching the growth of a negative in the developer, and who indeed of my readers is there who does not know what that means? I therefore commend to the notice of those who wish for a new pleasurable sensation to give the matter of intaglio plate etching and printing a fair consideration, and can assure them that the pleasure to be thence derived will far more than outweigh any considerations of trouble necessary in learning the A B C part of the manipulations, for there is nothing which cannot be easily learned if only the worker will condescend to be careful in little details and the employment of reasonable patience.

DIRECT PHOTO-LITHOGRAPHY.

IN view of the difficulty experienced in obtaining satisfactory transfers of half-tone work on lithographic stone, we reprint from *Photography* of April 15th the following:

"It is rarely attempted to print direct on to the stone, although all the earliest experimenters in the process directed their efforts to this end. It is admitted that there would be considerable gain in a direct print, the loss of sharpness and delicacy by transfer even under the best conditions being sufficiently obvious, but most workers who attempt direct work appear to find the difficulties too great, and fall back on the easier method of paper transfers. Yet it is very probable that, like many other old processes of great practical merit, direct photo-lithography fell into desuetude because those who tried to work it lacked the necessary patience to master the details and conquer the difficulties which always crop up in working a new process.

"Recently the writer was led to try a method of direct printing on stone, and found it far from being so difficult as it had been represented, and after two or three attempts a really good print was obtained, possessing a sharpness which could not be got with any transfer method. Afterwards the process became comparatively easy as practice was gained. There are many lithographic firms which would be only too glad to find a man who can print direct on stone, and a study of this process may be recommended to young photographers who do not see any very rosy prospect in the present position of portrait photography.

"The process we used was based on the published method of Poitevin, but modified, as we shall describe. It will be best first to quote the original description, or, rather, a translated version of it.

"Poitevin says: 'A hard and close-grained Bavarian lithographic stone is to be preferred. The surface being smoothed and finely grained, I wet it, and having removed the excess of water, I apply with a brush the bichromate mixture, composed of an egg beaten up, passed through a piece of linen, and mixed with an equal quantity of saturated solution of bichromate of ammonia. With a sponge I clean the edges of the stone, and with a linen dabber I remove the excess of solution by dabbing, but without rubbing, and with a drier cloth I remove the remainder of the liquid in the same way until the stone no longer moistens the finger when touched. By working thus, only a very small quantity of the bichromated mixture penetrates into the stone and forms there a very regular inner layer without covering its surface. Without waiting for the complete drying of this layer, I apply to it the photographic *cliché*, if of paper, by keeping it in place by means of a glass plate fastened down by means of pellets of soft modeling wax. I have also used a special pressure frame to hold the stone and negative, but the way I have described answers ordinarily. If the negative is on glass I fix it with wax. I expose the prepared stone either to direct sunlight, falling perpendicularly on its surface, or to diffused, laying the stone horizontally. The time of exposure is very variable, in summer from ten to twelve minutes in the sun, and in winter from an hour and a half to two hours ; in the shade the exposure will be from four to five times longer. In any case the latitude is great, and it is better to expose too much than too little, because over-exposure can be corrected in the inking of the stone and by the etching and proving, while too little exposure prevents the greasy ink from adhering to the half-tones, and that cannot be remedied.

" 'After exposure to light the stone is taken into the inking room, and there left for some time to take the temperature of the surrounding air, whether it may have been too much warmed or chilled, according to the temperature of the time of year.

" 'The stone is moistened with a sponge dipped in a solution containing one-third of glycerine to two-thirds of water, and having removed the excess of liquid, I pass a roller charged with transfer ink and varnish all over the stone. The image then appears gradually, the parts which have received the action of light retaining the fatty ink, while the others, corresponding to the whites of the drawing or opaque parts of the negatives, repel it. The stone is damped lightly with ordinary water, and the inking is continued until the drawing has attained the desired strength. If the stone should have been over-inked, the whole is removed with turpentine, the stone is wiped and damped, and the inking-in is done again more carefully with the roller less charged with ink.

" 'The stone is then left at rest for about twelve hours, in order that the fatty ink may penetrate it and be fixed more completely. It is then gummed. After an hour it is washed, the gum removed, and the stone is then rolled in with ordinary printing ink, etched and proved by pulling a few proofs, just as in the case of an ordinary chalk drawing on stone.

" 'If the exposure to light has been insufficient, the fatty ink will take with difficulty and the proof will be wanting in half-tone ; on the contrary, if over-exposed, the image will be heavy and blocked up, but in the majority of cases a good proof is obtained because there is a great latitude in the exposure if the lithographer is skillful in working up the image. In any case it will always be better to expose a fresh stone rather than to hand over a bad impression to the printer.'

"It must be noticed that Poitevin is here describing a method of half-tone transfer, and for this reason he speaks of the surface of the stone being finely grained. For a line engraving, or a print from a half-tone negative made with the ruled screen, the smoother the stone is the better, and, therefore, the polish should be the highest it is possible to obtain, and care should be taken that the stone has been ground quite flat. Any hollows will give trouble. The quality of the stone is of importance, and it should be for preference that rather scarce kind, the gray stone. The yellow stones can be used, but not so easily. The surface of the stone should, of course, be scrupulously clean ; any finger-marks would leave a greasy stain which would attract the ink. In coating the stone as described, there would be a difficulty in getting an even film, and the writer prefers to warm the stone in front of a good fire until all the moisture is driven away from the surface of the stone, which then becomes quite warm. The sensitizing solution, exactly the same as used for zinc, is flowed on and spread with a glass rod if it does not flow well.

"It is best not to allow any solution to go over the edge of the stone, as it has a tendency to creep back, bringing dust and grit with it, and setting in dirty ridges. The warmth in the stone quickly dries the film, and when quite dry it is ready for exposure. Small stones can be screwed up in a specially made deep printing frame with plate-glass front. There is not so much risk of breaking the negative as might be supposed. Poitevin's method of attaching the negative to the stone with pellets of wax is a convenient way, provided the negative glass is flat and the exposure made inside a deep box with blackened sides, so that the light falls perpendicularly.

"A better plan is to use stripped film negatives, squeegeeing them into contact with the stone, after having given the latter a light coating of castor oil or vaseline applied on top of the sensitive coating by means of a gelatine roller. The film will then adhere very firmly to the surface ; the oil or grease does no harm, as it mingles with the ink when the rolling up comes. The printing does not take so long as Poitevin says. It is, in fact, pretty much the same as for zinc—about three minutes in good sunlight and from fifteen to thirty minutes in diffused light or shade. The temperature of the stone while being inked is quite as important as Poitevin points out. The ink used should be 'stone to stone retransfer,' applied with a leather roller as stiff as it can be worked. It must be well distributed, and the most delicate coating applied to the stone. Anything like blackness must be avoided ; it will simply be an olive-gray tint. Then the water from tap or hose pipe is allowed to run over the stone for some minutes, and an indistinct image will be seen. With cotton wool on a soft sponge the surface is gently rubbed until the ink is loosened and comes away. Eventually, if the exposure and other conditions have been correct, a beautifully sharp and black print on the stone will be secured. This is dusted over with very fine resin, and etched with acidulated water, about vinegar strength, after which it is gummed and rolled up in the usual way familiar to all lithographers. The result should be a print very much superior to transferred work, and it will retain its sharpness even during a very long run on the machine. The only drawback is the weight of large stones and the difficulty of handling them in the darkroom, but the process has a wide application with small subjects, for which the stones are comparatively light."

OUR ILLUSTRATIONS.

THE frontispiece of the present issue, a study by Dana, shows a most delightful handling of a very difficult subject. The modeling under the conditions which govern the composition is exceptionally pure and strong. It is, perhaps, unnecessary to say that this study is from the hand of Mr. George Bassett, many of whose successes in the operating room are familiar to our readers.

The charming little child study, on page 179, is from the studio of F. A. Forber, of Aleda, Ill., and needs no commendation of ours to give it a place in the list of good work. It is a beautiful example of dainty child grace and dignity in pose, well carried out in lighting and subsequent treatment.

An excellent example of pictorial photography may be seen in the reduced print from Newman, of an old woman with bundle of fagots, on page 185. This is a case where the treatment is harmonious and effective throughout, the background serving with the foreground and pose of the figure and its accessories, to tell a story which cannot be misinterpreted.

It is not often that in the small compass of a 2 by 3 picture a more pathetic and thoroughly natural story can be told than that seen in the little group making their way toward the Grant Monument on the day of dedication. This delightful bit of pathetic realism is from the hand of Mr. J. M. Forbes, whose work is, perhaps, not as well known as it might be, but this little scene is a good demonstration of composition and pictorial effect. We hope at a later day to have more of Mr. Forbes' studies to embellish the pages of the BULLETIN.

The little marine used as a tailpiece on page 172, giving the moonlight effect so daintily, comes to us from Mr. Julius Odenserf, of Santander, with the statement that it is made after the suggestion given in the last number of the BULLETIN. It demonstrates that the suggestion is based upon good, sound fact.

SOCIETIES

THE Teachers' Photographic Association of Philadelphia, to judge from its programme, is very active in field work, as there were five outing excursions bulletined for May, each under competent leadership. Such work as is laid out by this association cannot but be valuable to those engaged in it.

* * *

A large party of Philadelphia photographers, accompanied in many cases by their wives, viewed the Grant Memorial Parade from a tug which the party had specially chartered for the occasion. We shall look for some good results from their efforts.

* * *

We understand that the Brooklyn Academy of Photography was well represented at the Grant Parade, both on land and water, and that a considerable number of excellent views were obtained. It is the purpose of the Club to put these into lantern slides as soon as possible.

* * *

At the Annual Meeting of the Photographic Society of Philadelphia, the following officers and directors were elected for the ensuing year: President, Joseph H. Burroughs; Vice-Presidents, Charles R. Pancoast, Robert S. Redfield; Secretary, Edmund Sterling; Treasurer, Anthony W. Robinson; Directors, John C. Browne, Frank Bement, F. William Geisse, William H. Rau, Dr. Benjamin Sharp, Henry Troth, Samuel Castner, Jr., John G. Bullock, Horace H. Furness, William H. Roberts, Walter P. Stokes, George Vaux, Jr.

* * *

Circulars of the Annual Meeting of the Photographers' Association of Iowa, announced for May 11th, 12th and 13th, came to us too late for use in the May number. We shall hope to have some items concerning the Convention for the next number of the Bulletin.

* * *

At the Annual Meeting of the Photographic Club of Baltimore the following officers and directors were elected to serve for the ensuing year: President, A. S. Murray; Vice-President, Dr. F. Slothower; Treasurer, E. M. Barker; Secretary, B. G. Buck.

The above, with Jordan Stabler, James B. McKee and F. W. McAllister, constitute the Board of Directors.

* * *

At the Annual Meeting of the Photo Art Club of Elizabeth, N. J., the following officers were elected for the ensuing year: D. R. Blackford, President; A. Trimmer, Vice-President; James A. Knowles, Treasurer, and E. R. French, Secretary.

Records of the Club show it to be in a very prosperous condition, and it is growing from month to month.

The Annual Meeting of the Department of Photography of the Brooklyn Institute was held on the 6th of May, on which occasion the following officers were elected: President, Myers R. Jones; Vice-Presidents, Charles H. Morse and George W. Wundram; Recording Secretary, Mr. Norris; Corresponding Secretary, W. J. Bryant; Treasurer, L. D. Martens; Curator, James W. Kort.

The Annual Exhibition of Prints and Lantern Slides is announced to be held at the Art Building, May 22d to June 3d, in connection with which the annual dinner of the Department will take place at the Union League Club on the 21st of May.

* * *

The Montreal Camera Club held their Annual Meeting on the 5th of May, and, after listening to the reports of their committees, elected for the forthcoming year the following officers: President, Frank R. Redpath; Vice-President, Chas. Lester; Honorary Secretary, R. L. Weldon, 23 St. Helen street; Honorary Treasurer, A. C. Lyman Executive Committee: Albert Holden, J. Hamilton Ferns, Alfred W. Cole, Geo. McDougall, C. J. Fleet, C. P. Cleghorn.

* * *

We understand that an organization has recently been formed in Philadelphia under the title of The Professional Photographers' Club, which is intended for scientific discussions on trade interests and mutual protection. It is proposed to interest all photographers in the city in this movement with a view of improving the conditions of the photographic business generally in that section. The Club has about forty members and will meet monthly. Ryland Phillips has been made president.

GOOD ROADS BUREAU, PRIZE OFFER.

ONE hundred and twenty-five dollars in cash has been offered in prizes by the League of American Wheelmen for photographs of bad country roads. The pictures are to be used in the work of its National Committee on Highway Improvement, and are to be sent, during this year, to the Chairman of this Committee, Mr. Otto Dorner, Milwaukee, Wis. The competition for these prizes is not limited to members of the L. A. W., but is open to all alike. The Committee has set aside a first prize of $50, a second prize of $25, a third prize of $15, a fourth of $10, and five prizes of $5 each. Prizes are to be awarded on single pictures, and no two prizes will be awarded to a single person, though it is expected that many of the competitors will submit a number of photographs. The pictures desired are to show the inconveniences and losses resulting from poor highways, especially to farmers. The League of American Wheelmen has published extensive literature on Good Roads, and the best of the pictures received under this prize competition are to be used in illustrating articles and pamphlets on that subject. It is expected that members of the L. A. W., and wheelmen generally, who are able to use the camera, whether amateurs or professionals in this line, will assist in this work, by sending in pictures of bad roads, and incidentally taking part in the competition for these cash prizes.

All copy for the July issue of the Bulletin *must be in our hands by June 15th at latest.*

School of Practical Process Engraving

OUR Reviewer.

The *Mail and Express*, of New York, is to be credited with a new venture in connection with journalism in that it is now publishing with its Saturday edition a supplement devoted entirely to photography viewed from the side of the amateur's requirements. This weekly supplement is a 4-page sheet, 10 x 13 inches in size, profusely illustrated with the work of the amateur and shows a very creditable *ensemble*, and we are glad to welcome it to the field of photography.

First Step in Photography, by F. Dundas Todd, editor of *The Photo Beacon*, and published by the Photo Beacon Publishing Company, comes to our table with the statement that sixteen thousand copies were sold on the day of publication. This statement is quite easily credited when the book is reviewed, as it is written from the standpoint of one thoroughly acquainted with the subject, and is addressed to those desiring information about photography. It is a thoroughly readable handbook on photography, price of which is 25 cents.

A very complete and handsome catalogue of nearly two hundred pages 8 x 10½ in size, comes to us from C. Weichsel, Dallas, Tex., to whom the Bulletin extends its hearty compliments on the work. Within its pages may be found almost everything ever thought of to assist the photographic enthusiast, and the whole is so well put together and finely printed that it is a pleasure to examine it.

We have before us a copy of *Rural Summer Homes*, published by the passenger department of the Erie Railroad Company, which is illustrated in halftone, entirely from photographs of scenery along the lines of the road, and which seems to us to be one of the most charming publications of its kind that we have ever seen. The views are made by an artist in every case, the compositions in several instances being photographic gems, the reproductions are excellent, and the presswork does justice to both. We would congratulate the management on their ability to turn out such an artistic production, which rivals many a more pretentious art publication.

Mr. W. Knapp, the well-known publisher in Halle a/S., Germany, has sent us a set of very neatly executed photo-mechanical prints, with suitable designs, artificially drawn, intended as studies for the photographer. The work, which is to appear in a series of numbers, is edited by Dr. A. Miethe, of the *Photographische Chronik*, and the designs are by the well-known Vienna artist, Mr. Charles Scolik. The names are a sufficient guarantee for the value of the publication.

Ralph J. Golsen, of Chicago, has just issued his "Catalogue of Photographic Supplies" which contains a large collection of goods and materials for the photographer.

We have received from F. Bruckmann & Company, of Munich, a large portfolio of prints in photogravure and photo-gelatine work, which are of great merit. The prints include gelatine printing in three colors, portrait and landscape reproductions in imitation of photographs, and of oil paintings in monochrome, and illustrations of photogravure work, all of which show a very perfect handling of the processes employed.

We would congratulate the publishers upon the dainty and artistic *ensemble* of the entire collection.

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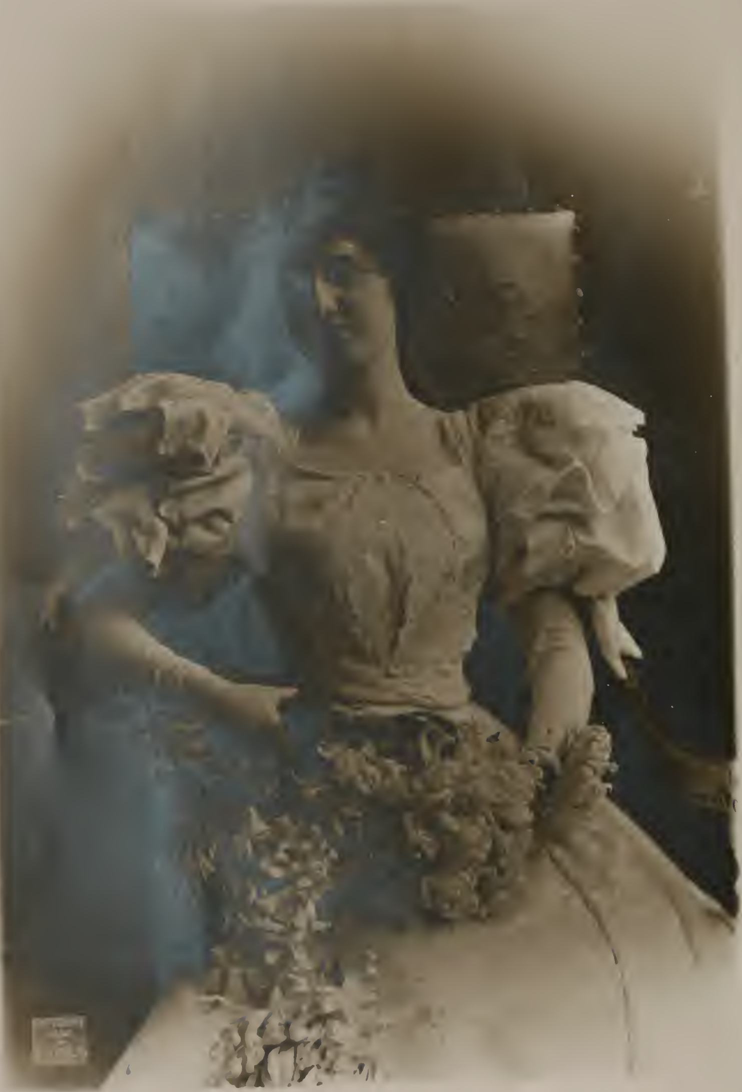

Photograph printed and developed automatically on

BUFFALO ARGENTIC ENAMELLED BROMIDE PAPER

by AUTOMATIC PHOTOGRAPH CO., NEW YORK.

(Negative kindly loaned by Mr Falk)

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.

W. I. SCANDLIN.

VOL. XXVIII. JULY, 1897. NO. 7.

CAN YOU AFFORD TO MISS THE CONVENTION?

AS the date of Convention approaches, many are doubtless asking themselves how they can best arrange their plans in order to attend, and in this connection the thought naturally comes to some that the cost and injury to business will be more than the profit gained by attending. To such we would say that, in our judgment, every photographic worker with any ambition will profit much more largely than he thinks by attending, and, on the other hand, he will lose vastly more than he can make up in the coming year by missing the Convention. This opinion is grounded upon careful study and a somewhat intimate knowledge of the facts gleaned from former years. It stands to reason that where many of the best representative men of the country are gathered together in convention, there is interchange of ideas, experience and enthusiasm which cannot be looked for under any other conditions. All this is good stock in trade for the live man, and in after weeks and months, suggestions received and ideas inculcated at the Convention are sure to ripen and produce results which will pay in his gallery work.

The large assortment of apparatus and materials for working, which will be exhibited by the stock dealers, affords an opportunity for comparison which does not occur at any other time or place, and enables the photographer to restock his gallery and to post himself on the condition of the market, as he can do in no other way. The numerous talks, demonstrations and studies carried out on the various lines of studio work have a much greater animating power and controlling interest when heard from the lips or seen at the hands of the demonstrators, than can be possible in print. We claim, therefore, that these reasons alone form a sufficient argument why every photographer

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should attend the Annual Convention of the Photographers' Association of America. Outside of and beyond these reasons there is another and very important one: The Convention affords a week of an entirely different character from any other week in the year. The photographer is the man entertained. He owns the earth, or, at least, that part of it in which the Convention is held. Everything is made for him, and from the moment he leaves his studio, even if he has to lock the door and hang a card on the outside to the effect that the studio is closed until after the Convention, he is breathing a different atmosphere from that in which he ordinarily lives, and is adding to his stock of vitality, and, therefore, to his ability to do his work more satisfactorily when he returns. The very break which this week makes in the routine of the year is of itself an aid to business, and the Bulletin sincerely hopes that the doubting members of the profession may be converted to the belief which it sincerely holds, that no true photographer can afford to miss the coming Convention at Celoron.

Items of Interest

It is claimed that the tendency of the Crookes tube to lose effectiveness on continued use may be obviated by a device suggested by Messrs. T. W. Ireland and E. H. Howlett, F. R. C. S. The treatment consists in wrapping the cathodal extremity of the bulb in damp cotton wool or lint, one end touching and surrounding the bulb at the cathodal end, while the other is attached to the cathodal wire.

It is claimed that the effect of this application is immediate and effective, and that a bulb so treated, which before application had refused to light up properly, became again perfectly practicable, with an increased power of working capacity. The wool or lint must be carefully put on so that no loose fibers hang around the bulb, and the anodal connection must also be carefully adjusted in the same manner. It is claimed that, if these precautions are followed, very great improvement will be found in the working and lasting capacity of the tubes.

A photographic competition, open to all, is announced by the Pope Manufacturing Company, which should be of considerable interest to amateur photographers, particularly such as combine cycling with photographic work. The list of prizes and details of the competition are too lengthy for publication in the Bulletin, and we advise all interested in work of this kind to address the Art Department, Pope Manufacturing Company, Hartford, Conn., for full particulars.

It is reported that the statue of Daguerre, now in the rotunda of the National Museum Building, in Washington, is shortly to be removed to a position on the grounds near the statue of Dr. Gross. This change is said to be made at this time owing to the fact that work is going on in building galleries in the main halls, and that the space occupied by the statue is needed for other purposes. It will be remembered that it was the intention of the Photographers' Association of America, who gave the statue, to have it placed in some good locality on the grounds, but owing to the fact that a proper site was not then selected, it has temporarily occupied the position from which it is now about to be taken.

◆

We learn that a statue to Daguerre has been erected by his countrymen in the little town of Bry-sur-Marne, where he died, and that it was lately unveiled with appropriate ceremonies. The little town is said to have been the scene of great enthusiasm on the occasion. This ceremony has furnished another opportunity to revive the controversy as to the propriety of claim for honor in the photographic world between Daguerre and Niepce, and both sides are still talking.

◆

A very interesting and novel exhibition was made before the Glasgow Philosophical Society at a recent date by Dr. John McIntyre, who, by the combination of the Röntgen rays and projecting lantern for movable films, showed the anatomy of a frog in motion. The limbs were controlled by mechanical means, and illuminated by a Crookes tube actuated with a 10-inch spark coil. The instrument then being covered with lead foil and the lens removed, a small lead diaphragm was substituted for the lens and the tube illuminated. The projecting lantern, with 35 feet of film, was then set in motion, the mechanical device put in operation, and a series of views of the skeleton projected upon the screen. In this the movements of the bones of the limbs were plainly observable by the audience.

◆

As the Bulletin goes to press our friends in England will be in the act of celebrating the diamond jubilee of their sovereign's reign, and we join with them in our hearty congratulations to Her Majesty the Queen. It is to be hoped, in view of the importance which the weather will assume in an event of this kind, that the skies may be clear and the sun in evidence.

◆

The announcement is made that a prominent English firm of photographers has abandoned the use of daylight in its studio entirely and substituted for it the incandescent electric light. The reason for such a move is more apparent to one who is conversant with the scarcity of sunlight in England than to those of us who are fortunate enough to know what good daylight is.

The Forty-second Annual Exhibition of the Royal Photographic Society of England will be held from September 27 to November 13, 1897, in the Gallery of the Royal Society of Painters in Water-Colors, London. Foreign and colonial exhibitors are invited to contribute. There will not be any charge for wall space, and all intending to exhibit must send their prints postpaid to the Secretary of the Royal Photographic Society, 12 Hanover Square, London, W., before Wednesday, September 8th. Blank entry forms and other information may be obtained from the Secretary as above.

An International Photographic Exhibition is to be held in the Royal Glasgow Institute of Fine Arts from the 1st of September to the 13th of October under the auspices of the Glasgow and West of Scotland Amateur Photographic Association. Foreign pictures will be received if sent unframed, but they must be mounted. They will be framed temporarily free of charge. A large number of medals will be awarded in the various classes, and the exhibition promises to be of great interest photographically. There is to be a photo-mechanical section, as well as purely photographic classes, embracing photogravure, block process printing, collotype and woodburytype and color work. Full particulars and blanks may be obtained by addressing the Honorary Secretary, William Goodwin, 3 Lynedoch street, Glasgow, Scotland.

Colonel Waterhouse, whose name is so well known in photographic circles, retired in May from the post which he has filled for so many years and with such conspicuous success as Chief of the Government Survey Offices at Calcutta, India.

The professional photographers of Denver, Colo., have organized, and among other good things which they purpose to accomplish is the entire closing of galleries on Sundays. We understand that an agreement to this effect has been entered into by the leading men of the city, and all others are expected to join very shortly. This will insure to photographers of one city in the Union, at least, one day in each week of freedom from routine work, which is as it should be.

The Convention of the British Photographers, under the name of the Photographers' Convention of the United Kingdom, takes place at Yarmouth, England, simultaneously with our own convention here, and a programme is laid out which will keep our English cousins very busy having a good time, entertainments, reception by the Mayor of the city, and excursions galore being planned for the week. As *Photography* suggested in a late issue, it would be a pleasing thing for the two conventions to exchange official greetings.

A FORMULA which is said to be excellent for the blackening of brass diaphragm stops is as follows: A saturated solution of sulphate of copper is added to a sufficiently saturated solution of carbonate of ammonia to nearly re-dissolve the precipitate first formed. The stop should first be well cleaned with fine emery powder, well washed, and immersed in the solution. It should then be subjected to heat from a spirit lamp or Bunsen burner, the operation being repeated until the color is sufficiently dark. It is then finished by dipping in negative or mat varnish.

◆

THE well-known English firm of J. H. Dallmeyer & Co., whose lenses are in such universal demand, have adopted an unique and very sensible method of celebrating the jubilee week, and announce their intention of granting to their employees two days' holiday with three days' pay attached. By this means they have the satisfaction of knowing who are the recipients of their generosity, and adding another link to the bands that bind together employers and employees.

◆

SOME of the recent photographs made in the early evening and by gaslight show so many truly good points, that it is to be hoped more experiments will be made in this direction. It is apparent, of course, that work of this kind cannot be classed as straight and regular photography, but as a side issue it is capable of great improvement.

◆

IT is suggested by a writer in the *Photographic News* that where a print after having been toned and fixed is too weak, it may be improved by dampening and squeegeeing on a piece of ground-glass, which has previously been thoroughly cleaned and polished with talc. It is claimed that while the tone suffers somewhat, the strength of the print is very much improved; of course a fine mat surface results, which also tends to help it.

◆

A CEMENT may be made which will fasten celluloid to wood, tin and other substances by combining two parts of shellac, 3 parts spirits of camphor, and 4 parts strong alcohol.

It is necessary, however, to keep this cement closely corked.

◆

AND now the poor microbe seems to be responsible for certain troubles in negatives, which have previously been more or less mysterious, it having lately been demonstrated that the gelatine of the negative is possible of being liquefied by the attacks of the microbe cladothrix dichotoma. A remedy for this seems to be possible in the quick drying of the negative, which renders it safe from the attacks of this microbe.

PHOTOGRAPHERS' CLUB OF NEW ENGLAND.

THE Photographers' Club of New England offers for their first Annual Convention and Exhibition, to be held in Boston, July 28th and 29th, the following prizes in the different classes:

Grand Prize.—The Hastings Cup.—Two genre pictures, 11 by 14 plate or larger, subject to be chosen by the photographer, the title to be inscribed on each picture, to be framed or not, as the exhibitor may decide.

Class A.—Six or more portraits, pictures to be from 11 by 14 plate, or larger. First, 8 by 10 Royal Portrait Camera Box, value $50; second, one case 20 by 24 Climax plates; third, diploma.

Class B.—Twelve or more portraits, pictures to be larger than cabinets and smaller than 11 by 14. First, Darlot No. 3 Anastigmat Lens, value $45; second, one case Stanley 11 by 14 plates; third, diploma.

Class C.—Twenty-four portraits, cabinets, or some of them smaller. First, Darlot 4-4 Portrait Lens, value $35; second, 8 by 15 Extension Packard Background; third, diploma.

Class D.—Competition limited to cities of 15,000 or under. Eighteen portraits, 11 by 14 plates, or some of them smaller. First, 8 by 10 Extra Rapid Lloyd Special Lens, value $38.50; second, case 11 by 14 American plates; third, diploma.

Class E.—Competition limited to cities or towns of 5,000 or under. Eighteen portraits, 8 by 10 plates, or some of them smaller. First, Semi-Centennial Camera Stand, value $25; second, case 5 by 8 American plates; third, diploma.

Class F.—Competition limited to towns of 2,000 or under. Twelve or more portraits, any size. First, Voigtlander Euryscope Lens, No. 00, value $37.50; second, case 5 by 7 Stanley plates; third, diploma.

Class G.—Landscapes, with or without figures. Six or more from 6½ by 8½ plates, or larger. First, 6½ by 8½ View Camera, value $25; second, Thornton-Pickard Shutter; third, diploma.

Class H.—Marines. Six or more, from 6^2 by 8^2 plates, or larger. First, case 11 by 14 Climax plates; second, diploma.

Class I.—Architectural. Six or more, from 6^2 by 8^2 plates, or larger. First, case 20 by 24 Stanley plates; second, diploma.

Class J.—Portrait Groups. Two pictures, from 8 by 10 plates or larger. First, case 14 by 17 American plates; second, 25 by 30 Gold Portrait Frame; third, diploma.

Class K.—Special prize for honorary members in the United States and Canada, outside of New England. One portrait from 11 by 14 plate or larger. First, suitable work of art; second, case 8 by 10 Climax plates; third, diploma.

Two dollars must accompany the entry for this class, in order to make the exhibitor an honorary member, and eligible to competition.

A diploma for the most tastefully arranged exhibit.

Entries must be made to F. Flodin, Secretary, 476 Main street, Worcester, Mass., prior to July 14th, as no space will be assigned after that date.

GEORGE H. HASTINGS, *President.*

34 Hayward Place, Boston, Mass.

NOTES ON STUDIO PORTRAIT WORK.

IN a paper recently read before the Royal Photographic Society of England by Mr. Harold Baker on the above subject, many valuable suggestions appear, and we append a portion of the article in which he says:

"Instead of using an elaborate arrangement of blinds, I prefer to get varied effects of lighting by placing the sitter in different parts of the room, and in that way I am able to use all the light in the room and make quick exposures. I always prefer to make my exposures short, and in this matter I am afraid we are not so grateful to the plate-makers as we should be. I sometimes wonder what we should do now if we had to go back to the old wet plate, yet some fine work was done with it. The plates of to-day are much quicker than they were two or three years ago, and they seem to get quicker every day.

"I am afraid my want of early training is responsible for some of my revolutionary notions—for instance, I can never understand why all the professional photographers of my acquaintance still cling with a fond affection to that barbarous relic of the dark ages called a head-rest. Why do they still use it? It is hardly ever necessary in these days of quick-acting lenses and fast developers, and extra rapid plates. Many sitters exclaim, 'Oh! I am so glad you don't put that horrid thing to my head'; for I never use a headrest if I can help it, even for standing figures.

"As regards posing, the golden rule seems to me to do none, or as little as possible. A suggestion may be made, and the hand turned a little this way or that, or the head tilted, and so on, but let it be as little as possible. I have never found that a pose that was difficult to arrange was a good one; better start afresh.

"One must always be looking out for suggestions, for many a good pose comes of itself, and is, perhaps, quite different and much better than the one originally intended. Another point is to avoid keeping the sitter longer than is absolutely necessary in the pose to be photographed. Above all, let the position be as far as possible a natural one. I knew a photographer once, of whom it was said that his sitters' backs ached for a week after they had been photographed by him. Never use an accessory if it can be left out. Examine the work of the great portrait painters, and see how little there is besides the figure.

"A few of the portraits I have brought to-night have been taken in the studios of artists, and among the advantages I have enjoyed must be mentioned that I have lived among pictures and their painters all my life, and I have had the advantage of criticism from an artistic point of view. I know of no better training for the young photographer than to have his work judged by artists, but I must confess that it is not always pleasant.

"We often hear a photographer complimented on the successful posing of children, but the photographer himself must feel that there is very little posing in the ordinary sense in the matter at all, as it is more a question of patience, fast plates, and a quick eye for seizing a pretty pose when it comes. I find that it is almost useless to attempt to pose children in the usual way, as they have a constitutional objection to doing what is wanted, and if any special arrangement is desired it is best to keep it a profound secret, and get it without the child suspecting it.

"I have one or two slides of a little girl taken with a cat, but if the cat had not been brought I am afraid no photographs would have been taken, for the child was under the impression that the cat only was being photographed, and I am shocked to think of the degree of duplicity necessary on that occasion, as I succeeded in making several exposures without the cat at all.

"But, as a rule, there are no more delightful sitters than the children of people of good position, and I often positively enjoy photographing them. I do not say always, because there are times when they are what Mr. Wilfer, in 'Our Mutual Friend,' would call 'rather wearing.'

"It is often said that a photographer must have children of his own to be successful with children. I am fain to believe that I am a living proof to the contrary, for I must confess to being proud of some of my photographs of children.

"I think few photographers realize the great difference that can be made in the lighting of the face by varying the strength of the background. I have prepared two illustrations of this. In each case the sitter has been taken in the same positions, but with three different backgrounds; the plates received the same exposure, and were developed in the same dish, and I have arranged them on one side for the sake of comparison. Few who have not tried the experiment can believe that the background only is responsible for the great difference in the faces. In No. 3, with the dark background, the face appears over-exposed and flat, yet it received, as I have already said, exactly the same exposure as the others. No. 2, with the background of middle tone, gives the face in about its right depth, but No. 1, with the white background, makes the face appear much too heavy, and suggests under-exposure. In actual practice I always give a much longer exposure when using a white background than when using one of medium strength. Probably the proper exposure for a head against a white ground would be three times as long as the same lighting with a black background."

KENT HOUSE AND WALDMERE HOTEL.

IMPORTANT CONVENTION NOTES.

As the Convention draws near, the interest concentrates, and from present indications it is safe to predict that the coming Convention of 1897 will be far and away the best in the history of the Photographers' Association of America.

The rates from all points east of Buffalo and Pittsburg will be on the certificate plan, on the basis of one and one-third fares for the round trip. Members will pay full fare going to Chautauqua, and, when buying ticket at the home office, get a certificate from the agent. At the convention this certificate will be signed by the secretary of the association and a special agent of the railroads, when it will be good for ticket for return, on payment of one-third of the amount of a full fare. Remember that these tickets cannot be secured on Sundays; they will be on sale at your home office three days prior to the Convention. Buy your ticket to Jamestown, N. Y. If, however, parties desire to locate at Lakewood or Greenhurst, they will be carried to Lakewood Station on Jamestown tickets, if a request is made to the conductor prior to arriving at the Jamestown Station. Lakewood Station is located about five miles west of Jamestown, and is the station at which passengers for Greenhurst should arrive. Members going to Greenhurst Hotel will be met at Lakewood Station and escorted across the lake by Greenhurst porters.

West of Buffalo and Pittsburg the remarkably low rate of one fare for the round trip has been secured, but tickets are to be on sale for two days only, viz.—the 11th and 12th of July.

The fare for the round trip from a number of principal points will be as follows:

Boston *via* Fitchburg, D. & H. and Erie Railroad	$14 20
Providence *via* N. E. and Erie Railroad	14 20
Albany *via* D. & H. and Erie Railroad	9 53
New York City *via* Erie Railroad	12 00
Philadelphia *via* P. & R., L. V., and Erie Railroad	13 07
Baltimore *via* B. & O., P. & R., L. V., and Erie Railroad	15 20
Washington, same route as Baltimore	16 80
Toronto *via* Grand Trunk and Erie Railroad	6 96
Toronto *via* steamer, G. T., and Erie Railroad	5 55
Buffalo *via* Erie Railroad	2 75
Pittsburgh *via* P. & L. E. and Erie Railroad	$7 00
Cleveland *via* Erie Railroad	4 25
Columbus *via* C. H. V. & T. and Erie Railroad *via* Marion	8 40
Cincinnati *via* Erie Railroad	11 00
Dayton *via* Erie Railroad	9 80
Louisville *via* B. & O. S. W. and Erie Railroad	14 50
Detroit *via* D. & C. S. Navigation Company's Str. and Erie Railroad *via* Cleveland	6 75
Grand Rapids *via* Rail to Detroit, then same route as Detroit	11 58
Chicago *via* Erie Railroad	12 00
Indianapolis *via* Big 4, *via* Marion and Erie Railroad	12 48
St. Louis *via* Big 4, Wabash or B. & O. S. W. and Erie Railroads	17 75

Special parties are being made up in several centers: In Chicago Charles R. Stevens, President of the Chicago Photo Stock Company, 38 East Randolph street, is in charge of the excursion.

The stock dealers of St. Louis will make up a party and probably run several special cars. At St. Paul, Zimmerman Brothers will make up a car and join the big train at Chicago. At Milwaukee, Indianapolis, Columbus, Cleveland, Detroit, and Toronto, dealers will make up parties. And from Philadelphia a large party will go under charge of the Chautauqua Club, of Philadelphia, of which Mr. W. B. Kenderdine, of No. 910 Arch street, Philadelphia, is Secretary. Cordial invitations are extended to photographers, employees and their friends to join any of these parties.

The New York City and Eastern delegation will be under the auspices of Anthony's Photographic BULLETIN, and will leave New York Sunday evening, July 11th, on the Erie Railroad, on one of the finest trains running out of the city. The train consists of up-to-date Pullman sleepers, a combination high-class coach with luxurious fittings and smoking compartment. Also a new style combination café, restaurant, and smoking car. In this car one can buy a first-class meal, *à la carte*, at very reasonable prices, up to 12 o'clock at night. This train, which is the pride of the Erie management, leaves New York at 7.30 P. M., and arrives at Jamestown at 7.55 in the morning, stopping at Lakewood station ten minutes later. Remember Jamestown tickets will be good to Lakewood if the conductor is notified before arriving at Jamestown. All Greater New York photographers, employees, and their friends, also those from near-by New Jersey, New York, and Connecticut points, will do well to join this train. W. I. Scandlin, 591 Broadway, New York, will take pleasure in securing sleeping berths and passage on this train for all who apply to him in reasonable season. Parties up the State and in Connecticut, or east of New York, can buy tickets at their home office to Jamestown, New York, *via* New York City, and join the "Vestibuled Flyer," and a pleasant party of New York photographers at 7.30 P. M., Sunday, July 11th. The price for sleeping car service on this train is $2.50 per each double berth.

Remember, if you live east of Pittsburgh or Buffalo, that you pay full fare going, and at time of purchasing your ticket you get from the agent a certificate, to return on at one-third fare ; and don't overlook the fact that you can not get these certificates on Sunday. Be sure to procure your ticket on Saturday, July 10th.

Copy for August issue must be in our hands by or before July 15th.

All mail and express matter should be sent to Jamestown. If delivery to the Convention Hall is desired, address all matter "care Photographers' Association of America Convention, Jamestown, N. Y."

There will be a private express office and post-office at the Convention Hall at Celoron, and all mail or express matter addressed as above will be delivered there.

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As the Convention comes in the regular tourists' season, it is very important that rooms be engaged immediately, and that this matter be not left until arrival at the Convention. If this warning is not heeded, disappointment will follow.

The rate of $2.50 per day for high-class hotels like the Greenhurst, Kent and Waldmere, is exceptionally low. Rates secured by the Committee from other hotels are equally low. The majority will stop at the two large hotels at Lakewood, the Kent House and the Waldmere; both are high-grade houses, at which $4 to $6 per day is usually charged. Both houses are under the same management, and are equally pleasant and comfortable, only a "stone throw" apart on the same beautiful slope. The officers' headquarters will be at Greenhurst, the beautifully located hotel opposite Lakewood. Decide where you will stop, and write to secure room at once.

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The experienced ones do not need to be reminded of the fact that if their dues are not paid in advance they may be obliged to stand in line a long time before they can reach the Treasurer's window to pay their dues. The best course is to remit now to George W. Varney, Treasurer, No. 3937 Drexel Boulevard, Chicago, Ill.

If you were a member last year all you pay is $2; if you were a member in 1896, and did not pay last year's dues, you should remit $4 for two years' dues. If you are not a member, remit $5; this amount covers your initiation ($3) and one year's dues ($2). Employees are admitted on payment of $2 dues, no initiation being charged for them.

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Take the ladies along to the Convention, for they will be amply entertained, and find many of their kind in evidence. Every entertainment during the Convention is for the ladies as well as the gentlemen, and an immense amount of labor has been put into the providing of entertainment.

Remember that the lake is 1,450 feet above sea level, and that the evenings are generally cool; also that most of the entertainment is planned for out of doors. Do not fail, therefore, to take wraps along for comfort and safety.

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Should there be any who prefer to go through to the Convention by day instead of joining the Bulletin excursion, as outlined above, they can take the train on the Erie road, leaving New York at 9 o'clock in the morning of Sunday, the 11th, reaching Jamestown late that evening. We hope, however, that all going from this part of the country will join the excursion, the cost of which will be no more than any other way, and we believe all will find a capital opportunity of becoming acquainted each with the other on Sunday evening from 7.30 to the time of retiring. Reaching Jamestown early Monday morning, the party will then be fresh, after a good night's sleep, to commence the week's enjoyment.

A LAST WORD FROM PRESIDENT HAYES.

OFTTIMES it requires the hard raps of adversity and general depression of business for individuals to learn the value of counsel with others. Never was such a condition of affairs in the photographic business more true than at the present time. At no time since the first inception of photography has the fact been more patent that an association of men engaged in a particular line of business was essential to the success of such individuals.

The last few years have been productive of such distressing commercial conditions that it is very natural that the photographers of the country should assemble in convention for the purpose of comparing ideas and devising methods which may result in the betterment of the condition of all of us. Prosperity does not beget the sociability and confidence and the concentration of ideas as does adversity.

The coming convention of the National Photographers' Association will see convened together some of the brightest minds which are engaged in the photographic business—men who have assisted in bringing this noble art up to the high standard which is maintained to-day. They will lend their advice to the success of the Chautauqua convention, and it is promised that the papers which they will read, and the talks which will be made by them, will not fail of interest. The last few State and National conventions have furnished the most striking example of the wonderful stride which has been made in the advancement of photography in a short period, and it is safe to say that a vast deal of this advancement is the result of the conventions of which I speak.

I believe that all those who have the interest of photography at heart will be present at this convention at Celeron, July 12th to 18th, and that each will bring with him an expression of his views, not only on how to make good photographs, and the results of trials of new processes, but concerning the proper manner to conduct business from a business man's standpoint.

Another interesting feature to which I would call the attention of photographers is that Professor A. H. Griffith, of the Detroit Museum of Art, a thorough artist, a scholar, and a delightful speaker and able instructor, will be present and lecture before the Convention.

C. M. Hayes,
President National Photographers' Association.

WATER FOR PHOTOGRAPHIC PURPOSES.—HOW TO TEST IT.

By Rev. F. C. Lambert, M. A.

AMONG the things that photographers must have in reasonable quantity and of fairly good quality is water. The matter of quantity is one which generally can be easily determined, but as regards quality it is not quite so easy, but fully as important; for it happens at times that certain troubles arise in some of the more delicate operations, and everything, from the chemicals and plates to the camera and lens, are suspected and blamed for what is really due to some impurity in the tap water. To make a thorough analysis of water is an operation of some difficulty, and one requiring more chemical knowledge and skill than is usually possessed by the majority of photographers. Fortunately this degree of accuracy is seldom or ever required for our purpose, and it is quite easy for any person possessed of a little carefulness and patience to do all that is necessary. In the following notes, which are made perhaps needlessly explicit, full directions are given for the purpose under consideration, and it is assumed that the reader knows little or nothing of chemical analysis. His more expert brother must please pardon what to him may seem needless detail:

First, let it be observed that great care is needed in very thoroughly washing and cleansing all the vessels to be used. Let us suppose we have a "Winchester quart" bottle to contain the supply of water to be tested. Let it be several times washed out with a supply of the same water that is to be tested.

1. *Color.*—Take a quite clean white glass flask or other similar vessel holding about a pint of the water, and examine it in good daylight for color by holding behind the flask a sheet of good white and clean blotting paper. Pure water is colorless in small quantity and in bulk has a very slight suspicion of a bluish tinge. Peat, iron, sewage give yellow-brown tints.

2. *Taste.*—Pure water is tasteless and insipid iron sometimes gives an inky taste.

3. *Smell.*—Pure water has no scent. Impure water is often scentless at ordinary (cold) temperatures, but when warmed sometimes, organic impurities impart an odor. Therefore slowly warm the flask of water to about 80 or 100° Fahr. and compare it with a similar flask of quite cold water.

4. *Sediment.*—Water coming from the street supply at times has an appreciable sediment, fine particles of sand, etc. These may very easily injure a wet film by scratching it or getting embedded therein. To examine for sediment—collect a quantity, say 3 or 4 gallons, of water straight from the tap supply into some large and quite clean vessel, *e.g.*, a bath, etc. Cover over with a sheet of newspaper to keep out dust and let it stand still for a few hours, pour off slowly and examine, the last pint or so pour into a white pudding basin, when any sediment will be easily seen. Should you be troubled with a sandy water, tie loosely two

or three thicknesses of fine flannel over the mouth of the tap. This will arrest (practically all) the sediment that is likely to do any harm.

5. *Hardness from Lime in Solution.*—Some rough idea of the degree of hardness of the water may be arrived at thus: Take equal quantities (say a tumblerful) of rain water that has been well boiled, and fresh tap water. Dissolve a little soap in boiled rain water to form a fairly thick solution. To each of the two tumblers add an equal number of drops of the soap solution, and with a cleaned spoon beat up each into a lather. The harder the water, the more soap required, and the more stirring to get a lather. To confirm your suspicion of lime hardness make 10 per cent solution (in distilled or boiled rain water) of ammonium oxalate, and, failing that, any other (*e. g.*, potassium) oxalate may serve. To a tumblerful of tap water add a few drops of strong ammonia and then add the oxalate solution drop by drop, stirring with a glass rod. A milky-white precipitate indicates lime in the water. Allow the precipitate to settle; pour off (slowly) all the clear water you can, and add a drop or two of hydrochloric acid which will dissolve the white precipitate if it be calcium (lime) oxalate. The photographic moral of this matter is that when using potassium iron oxalate, either as a developer or for intensification, we must be prepared for a white veil of calcium oxalate if the water used contains lime in any appreciable quantity. But as a milkiness makes itself seen when making the potassium oxalate solution, it is obvious that if we first throw down the lime by adding a small quantity of potassium oxalate and then allowing the precipitate to settle, we can then use the clear fluid for making up the stock solution. This, of course, equally applies to the preparation of the oxalate developer for the platinotype process.

6. Lead and copper are by no means unlikely impurities when water has been stored in such metal vessels. To test for them pass a stream of washed sulphuretted hydrogen gas through the water; yellow-brown discoloration indicates possibly lead, copper or tin present. They are, however, not at all likely to be present in any material quantity.

7. *Iron.*—This is much more likely to be present than the last-named group of metals. To test for iron, add a few drops of strong pure nitric acid and boil in a clear glass vessel for a short time. When cold, add, drop by drop, a solution of potassium sulphocyanide. A red color indicates the probable presence of iron. If potassium hydrate (caustic potash) gives a green discoloration or precipitate, iron is probably present. Or if potassium ferricyanide (red prussiate) gives a blue color, iron is present. As, however, the quantity present is likely to be small, it will greatly assist matters if, say, a couple of pints of the water are slowly boiled down to a few ounces, and then tested.

8. Ammonia is by no means unlikely to be present in well-water, especially near any sewage, swamps, bogs, etc. Nessler's test is a very delicate reagent for this purpose, and indicates ammonia if present in very small proportion.

[Nessler's test may be prepared as follows, distilled water and pure chemicals of course being used: A. Dissolve 50 grains potassium iodide in 3 drams water. B. Dissolve 20 grains mercuric chloride (perchloride) in 1 ounce water. C. Make a solution of potassium hydrate (caustic potash), 1 part potash in 5 parts water (20%). Add B to A a few drops at a time, with frequent shakings, until a permanent precipitate is formed, and dilute with C until the total measures 3½ ounces; shake. Allow sediment to settle, and pour off the clear part for use.] To test for ammonia: Fill two clean, clear glass tumblers with water; to one add a few drops of Nessler's test; stir with clean glass rod and compare the colors of the water in the two tumblers by looking through them at a sheet of white paper. Ammonia is indicated by a discoloration towards yellow or orange, or brownish tendency.

9. Chlorides are easily detected by adding to a fairly large quantity of the water (say a glass vessel containing two or three pints) a few drops of nitrate of silver in distilled water. The strength of the silver nitrate solution is of not much importance, say, 5, 10, 20, or 50 grams per ounce. The weaker the solution, the more must be added to get the maximum precipitation of silver chloride. The test should be added drop by drop, well stirred with a clean glass rod, and the milkiness allowed to subside somewhat. The precipitate of silver chloride, when silver nitrate is mixed with water containing a soluble chloride, is generally familiar to the users of albumenized paper or wet-plate workers generally. Tap water may at times be used to make up the nitrate bath if the chlorides are first precipitated and the clear, supernatent water only used. In washing albumenized silver prints in tap water containing chlorides, it is advisable not to allow the precipitated silver chloride to settle on the surface of the print, but to keep the prints and water in vigorous motion until the water runs clear.

10. *Sulphates.*—The sulphates most likely to be found are those of lime, magnesium, potassium or sodium. The presence of a soluble sulphate can easily be detected by adding to a tumblerful of the water a few drops of barium chloride solution (*i. e.*, ½ ounce barium chloride in 5 ounces distilled water). A white precipitate (of barium sulphate) indicates the presence of a sulphate in the water.

11. Nitrites are not unlikely to be found in impure water. To test for a nitrite, proceed as follows: Dissolve a little white starch in boiling water (say as much starch as the blade of a penknife takes up, in half a teacupful of boiling water); add this to half a tumblerful of the water to be tested, and set aside to cool. Dissolve a few grains of potassium iodide in half a tumblerful of the water; add a few drops of hydrochloric acid; then add the starch solution. A blue color indicates the presence of a nitrite.

12. *Nitrates.*—A pint or more of the water, by slow boiling, should be concentrated to about ½ an ounce or less. When cold, add slowly (a little at a time) about half its volume of strong sulphuric acid and mix the two by pouring from one tube to another.

(N. B.—Mixing sulphuric acid with cold water gives out considerable heat. This acid must not be mixed with hot water. The mixture must be made gradually and the test tube kept standing in a vessel of cold water.)

When the sulphuric acid and concentrated water are mixed and cold, hold the test tube in a slanting position and pour slowly down the side about an equal quantity of freshly made solution of ferrous sulphate (protosulphate), and do not shake the tube. If a nitrate is present, you will at once or in a few minutes observe a brown ring in the liquid when the two liquids meet. This brown ring disappears on shaking.

Organic Matter.—The presence of organic matter in the water may be of the utmost importance to the photographer, and sometimes accounts for all sorts of troubles and mysteries (decomposition of gelatine, markings on plates, papers, etc.). It is a difficult thing to make a very thorough test, but the following will be usually sufficiently conclusive : To a pint of the tap water add two or three drops of sulphuric acid, and mix with glass rod. Now add a few drops of a solution of potassium permanganate (or, failing that, Condy's fluid), just enough to give a very pale pink color. Cover the vessel with a sheet of paper and note if any change of color takes place in five, ten, or fifteen minutes. The more organic matter, the quicker the change. It should, however, be remembered that this test by itself is not conclusive ; decoloration of the potassium permanganate may be due to other substances, nitrates, iron, etc.

Should ammonia or organic matter be found in the water, the cistern, well, etc., should be examined for decomposing animal or vegetable matter—a dead bird, mouse, leaves, etc. A small quantity of ammonia is taken up from the air by rain water as it falls.

Photographers may be reminded that when in any doubt it is better to use water that has been boiled for a few minutes and then filtered. Boiling alone throws down some of the more common impurities ; *e.g.*, carbonates of lime, magnesia, etc., as we know by the fur inside our boilers and kettles.

OBITUARY.

WE note, with regret, the death of Alvan G. Clark, of the famous firm of Alvan G. Clark & Sons, noted the world over for their telescope lenses. Mr. Clark died at his home in Cambridge, Mass., on the 9th of June, from a stroke of apoplexy. As a member of the firm Mr. Clark completed many famous lenses, among which are the Chicago refractor, the 26-inch lens in the Naval Observatory at Washington, and the 30-inch refractor for the Imperial Observatory at St. Petersburg, for which the honorary medal of Russia was awarded, the only one ever conferred on an American. In 1886, the 36-inch refractor, which was then the largest in the world, was made for the Lick Observatory, and is only now surpassed in size by the mammoth lenses just finished by Mr. Clark for the Yerkes telescope, which were shipped to Chicago only a short time since.

PHOTOGRAPHERS' ASSOCIATION OF OHIO.

THE Seventh Annual Convention of the Photographers' Association of Ohio will be held at Columbus, O., August 31st and September 1st next, on which occasion one grand prize, two special prizes, and six class prizes will be awarded as follows:

Grand Prize.—Twenty-four pictures. No restriction as to size. A diamond badge.

Class A.—Twelve pictures. No restriction as to size. First, gold medal; second, silver medal; third, bronze medal.

Class B.—Twelve pictures. No restriction as to size. First, silver medal; second, bronze medal.

[Competitors in Class B must be from towns of fifteen thousand or less.]

Class C.—Twelve pictures. No restriction as to size. First, silver medal; second, bronze medal.

[Competitors in Class C must be from towns of five thousand or less.]

Class D.—Views, interior or exterior. Six pictures. No restriction as to size. One silver medal.

Class E.—Commercial work. Six pictures. No restriction as to size. One silver medal.

Class F.—Portraits from negatives made by artificial light. Six pictures. No restriction as to size. First, silver medal; second, bronze medal.

The above classes are open to competition by members in good standing of the Photographers' Association of Ohio and residents of Ohio.

Special.—Professional photographers outside of the State of Ohio. One picture. No restriction as to size. First, gold medal; second, silver medal.

Special.—Amateur photographers. Open to the world. One picture. No restriction as to size. First, gold medal; second, silver medal; third, bronze medal.

Rules and regulations of the Association, entry blanks, or any further information concerning our Association, salon or coming convention, may be had by addressing any of the following officers:

GEO. B. SPERRY, *President*, Toledo, O.
I. BENJAMIN, *1st Vice-Pres.*, Cincinnati.
J. R. WICKERSHAM, *2d Vice-Pres.*, Urbana.
L. A. DOZER, *Secretary*, Bucyrus.
D. D. SPELLMAN, *Treasurer*, Springfield.

* * *

THE BULLETIN excursion train to the Convention leaves the foot of Chambers street at 7.30, or West 23d street at 7.25 o'clock, Sunday evening, July 11th. It is a splendid train, and will carry a big party to the Convention. Secure accommodations by sending your name and money to W. I. Scandlin, 591 Broadway, early, and be relieved of all trouble about tickets or berths.

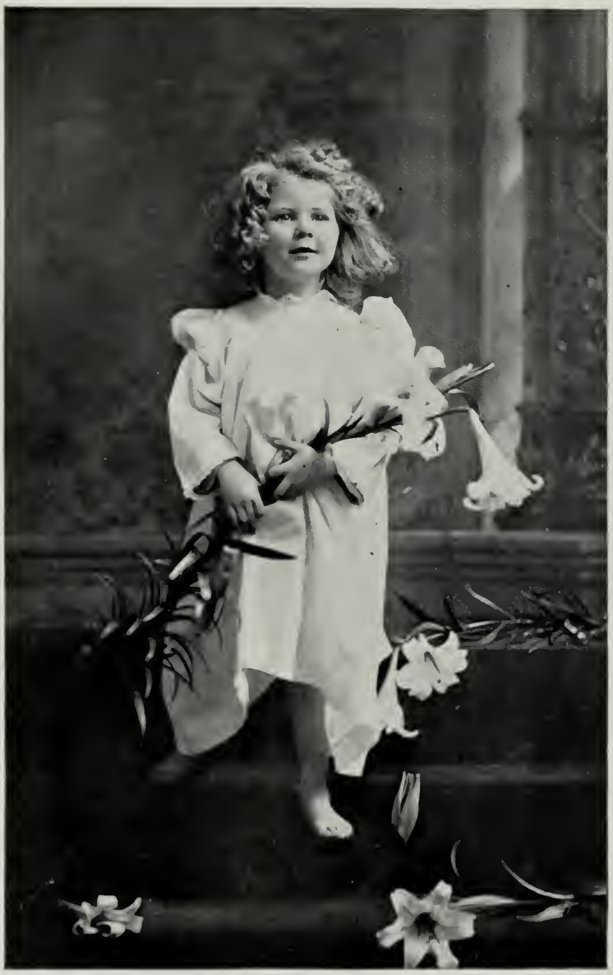

PHOTO BY COLLYER.

ENGRAVED WITH RICHARDS'
CROSS-LINE SCREEN.

AN EASTER OFFERING.

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GOLD AND PLATINUM TONING.

By Florence.

WHEN albumen paper was in general use an acetate of soda gold toning bath was considered sufficient, because it gave agreeable tones, was economical, and could be used quite a while. With the introduction of the emulsion paper, the condition of things has changed. There is such a variety of papers that they can be toned only with difficulty, unless a corresponding bath is at disposal. To remedy this evil the tone-fixing bath was introduced. Still, strange to say, nothing has been done to the present day to determine the influence of a gold bath upon the picture tone and the chemical changes which take place during toning. There are a good many erroneous ideas afloat, without any proper explanation. The toning, as is generally accepted, takes place by the chloride of the gold chloride uniting with the silver of the picture, whereby chloride of silver forms, while the gold precipitates as metal upon the silver picture, being physically attracted. The same process takes place in the toning with platinum.

The next question is now, in what proportion does this exchange take place, that is, how much chloride of silver is formed, and how much gold is precipitated in substitution for the same?

The chloride of gold, ordinarily used, corresponds with the formula $Au\ Cl_3$; it contains, therefore, 3 parts of chloride to each part of metal. If we place, therefore, a silver picture into a chloride of gold solution, 3 parts of chloride have to unite with 3 parts of silver to enable 1 part of gold to precipitate as metal. One part of gold will, of course, not cover so strongly as 3 parts of silver, which are dissolved in the fixing bath as chloride of silver, and the picture is, therefore, pretty well weakened in this bath, particularly in its half-tones, which disappear almost entirely.

If, however, we take in place of a simple chloride of gold solution one containing an alkali, so that the bath will have an alkalic reaction, the silver picture is much less attacked. What is the cause?

Herr Schmidt is of the opinion that by the alkali addition a product will form from the chloride of gold of formula $Au\ Cl_3$, which is poorer in chloride, containing still only a part of the same, therefore about $Au\ Cl_2$. By using this only 2 parts of silver would be required to precipitate 1 part of gold, and all waste would be avoided thereby.

This view, although it has its opponents, appears to be the most correct one, and is also represented in an analogous way in the negative process. By treatment with alkalies the silver bromure can be formed there from a product appearing to be proportionately rich in bromide. According to the acid the applied alkali contains, the reduction seems to proceed, more or less, energetically, so that the gold precipitate, which conditions the color of the picture, varies under otherwise equal circumstances. Carbonate of soda, for instance, which in consequence of its weak acidity is probably of a strong reducing action, will give a gray-black tone; citrate of soda, suffering less reduction on account of its strong acidity, will, therefore, give intensely red tones, resembling those obtained by a simple acid gold solution.

The aforesaid refers only to alkalic gold baths containing no rhodan salts, the latter baths differing materially from the others.

The process in platinum toning is similar to that of gold toning. The chloride of the platinum unites with the silver of the picture forming chloride of silver, and the platinum is precipitated as metal.

For toning, a salt is applied consisting of potassium, platinum and chloride, and known under the name of potassium-platinum-chloride, therefore a product pretty poor in chloride. This has the formula $Pt\,Cl_4$, and should therefore contain 4 parts of chloride to 1 part of metal. If applied that way, the picture would, of course, be considerably weakened, 4 parts of the silver being replaced by 1 part of platinum, or, in proportionate numbers, 432 parts of silver against 195 parts of platinum. This reduction appears excessive, and is in contradiction to the actual weakening of the picture, the same losing in the toning with platinum chloride no more than a picture toned in the alkalic toning baths, where perhaps 2 parts of silver are replaced by 1 part of gold. It appears, therefore, much more probable that in platinum toning 2 parts of silver are replaced by 1 part of platinum, and this is only possible when the platinum chloride corresponds with the formula $Pt\,Cl_2$. This same formula is mentioned by the well-known photochemists, Mercier, Duchochois, Carey Lea, etc., while others give the same as $Pt\,Cl_4$.

The latter is evidently taken from the formula $Pt\,Cl_6$ for platinum chloride, which is also mentioned as $Pt\,Cl_4\ 2HCl$, which, according to the above, seems to be more correct. If other metals of the platinum group applied to toning are compared with the platinum chloride, we will find that the picture is more or less attacked corresponding to the chloride compound. By applying, for instance, potassium iridium chloride, which, according to Duchochois, corresponds to the formula Ir_2Cl_6, a considerable weakening of the picture is proven, although only 3 parts of silver are exchanged for 1 part of iridium. For practical purposes, however, it is sufficient that in platinum toning the reduction of the picture is not greater than in a gold bath with acetate of soda.

It is interesting that by application of platinum chloride for toning the same proceeds only quickly and well with an acid bath. The solution should, therefore, always be acidified with an organic or mineral acid, for instance, citric, acetic, tartaric or nitric acid solution. Muriatic acid should not be applied, or in very small quantities, as it retards the decomposition and simultaneously favors the reduction of the picture. It is supposed that the nature of the acid is of some influence to the tone, so that nitric acid, for instance, furnishes blacker tones than other acids, particularly the organic ones, but this is not the case according to my experiences and numerous experiments. Every one of the acids mentioned will give a black, brown or blue tone; it depends all upon circumstances.

The tone attained in any of the various baths is in most cases not the product of gold—or platinum—precipitate alone, but the result of a color mixture of the silver picture (subchloride?) and the gold precipitate or platinum precipitate. Gold, as well as platinum, have in the thin layers, as found in the photographic process, a certain coloration, which in the thinnest layers appears very reddish; in the more dense ones bluish, and in the densest ones black. By combination of this color with that of the silver picture, as it appears after fixing, only the color-tone of the finished picture is obtained. The color-tone of the final silver picture is now mostly a reddish—sometimes intensely red—sometimes brown. If a thin, therefore, reddish, layer of the gold precipitate unites with the reddish tone of the silver picture, the total result is a purple tone. If the precipitate is thicker, therefore bluish, the result is a violet tone. If the layer is still heavier, the blue predominates, the silver picture becoming thinner at the same time, the result is then a bluish tone. If the precipitate is still thicker, the picture appears intensely blue-black, and the tone is actually black, where, in consequence of strong shadows, a pretty good layer of reddish brown silver (subchloride) is still to be found, the tone appears actually black.

To obtain black tones in gold toning depends, therefore, upon three factors:

1. Suitable color of the silver picture.
2. Sufficient intensity; respectively small reduction of the same.
3. A strong gold precipitate.

Regarding No. 1, it is known that pictures, if properly developed, can be obtained upon any printing-out paper in a blackish, dark tone, which is excellently suited for black toning. As to point No. 2, sufficient intensity can only be got by suitable negatives. It will, therefore, be found, by using less dense negatives, that purely black tones can be obtained only with difficulty, and sometimes not at all. Regarding point No. 3, strong prints are required, as otherwise the whole picture will quickly and completely be replaced by gold, notwithstanding only a small gold precipitate is obtained in the peculiar blue coloration.

The less a picture is now reduced at a simultaneously strong gold precipitate, the more possibility is given to obtain black tones. These conditions are fulfilled most completely by the rhodan-gold bath. This is obtained by adding an almost boiling rhodan-ammonia solution to a chloride of gold solution, thereby forming gold-rhodanure. According to Valenta, the solution tones after the following equation,

$$\mathrm{Ag + Au\,C\,N\,S = Ag\,C\,N\,S + Au};$$

that is, for one part of silver, which is changed to rhodan silver, one part of gold is precipitated. Thereby only a small reduction, by plentiful gold precipitation, takes place, and the getting of blue-black to purely black tones is considerably facilitated. By application of suitable papers, which give strong prints without considerable overprinting, good platinum black tones can be obtained with this gold solution, the red-brown of the print giving, with the blue-black of the precipitate, an intense black.

Exactly the same is the plan in platinum toning. The platinum precipitate is in very thin layers, very much like the corresponding gold precipitate. Violet tones can be obtained therewith by short toning. If the picture is a little over-printed, a completely blue picture will be obtained by a little prolonged toning, while, with intense prints, the result of the tone will be more black-blue, with pronounced blue half-tones.

The slower the toning with platinum proceeds, the more the tone will show a tendency to blue, while by rapid toning black tones will be obtained much sooner, provided that the print possesses sufficient intensity to enable a sufficiently dense precipitate. But the color of the picture is naturally of great significance here. There are papers which will tone well, while others, no matter what pains are taken, will give either brownish green or decidedly blue pictures.

To remedy this evil, a combined gold-platinum toning had to be introduced, suitable for every paper. Such a one will give good results ; but the matter has to be studied, and the work has to be done with the greatest care. The toning is done here in a rhodan-gold bath to a certain limit, and afterwards in a platinum toning bath. Both baths, applied by themselves, would give different tones, whose combination may result, finally, in a saturated black, if carefully treated.

Formerly the idea prevailed that the print toned with platinum, if it did not show the desired tone, had to be toned over in the tone-fixing bath, and that an old bath was the most suitable for this purpose.

This idea was, as far as regards a tone, not so bad, as the silver sulpho which forms hereby is always of a dark color, and would, therefore, in combination with the platinum tone, give a more or less passable tone. Unfortunately, it was disregarded, however, that after some time the half-tones disappeared, and the picture became totally yellow.

I return now to the simple alkalic gold bath, which contains no rhodan.

As mentioned above, the nature of the acid added to the alkali influences the tone decidedly, and it is to be accepted that this influence refers to a larger or smaller precipitate of gold, so that actually every bath within a certain time and under equal circumstances has to furnish a different tone. This is now actually the case. This time is called the relative toning duration. If we go beyond the same, the tone will sometimess pass into a higher state, but this is not always the case. Some toning baths tone only to a certain limit, remaining afterwards without any effect. In such a case the silver product has been used up, without the necessity of the whole silver picture having disappeared.

Of essential influence is also for the determination of the toning, the presence of organic silver salts and other compounds. Prints with citric or tartaric acid show, for instance, quite a different behavior in toning from such with superfluous chloride and nitrate of silver. In the first kind the picture consists, partly, directly of a product which was formed from organic silver salt, which by itself is light sensitive, and shows a color deviating considerably from that formed of chloride of silver and nitrate of silver. Another tone must, therefore, be the result. The same is the case with albumen paper. This contains, besides chloride of silver and nitrate of silver, albuminate of silver, which is directly instrumental in the production of the picture. In what manner this is now influenced by the toning bath is not yet known. Certain it is, however, that it shows another behavior from the silver compounds with the mentioned acids and with gelatine. The former show a decided tendency to the formation of warmer tones, while with albumen, as a general rule, each tone can easily be produced; and chloride of silver is always showing with nitrate of silver a tendency to the production of cold tones, namely, blue and black, as far as a developer is applied, serving for this purpose.

Translated by

Henry Dietrich.

THE WASHING OF GELATINO-CHLORIDE PRINTS.

MR. A. V. KENAH, in reviewing for the *Photographic News* a paper read before a recent British convention by Mr. Haddon, an eminent authority on this subject, quotes his statement of the three conditions to be considered, and gives his deductions from experiments as follows :

" When dealing with the question of washing prints, three questions have to be answered :

" 1. What must be the ratio of the volume of water to the area of the paper to be washed ?

" 2. How long must the prints be allowed to soak in each quantity of water ?

" 3. How many changes must the prints be subjected to ? "

The actual tests were made on albumenized paper in preference to gelatino-chloride, as the latter is usually so loaded with barium sulphate that it is difficult to obtain clear solutions by filtration through paper, especially when treating the ash of the burnt paper with ammonia. But what applies to albumenized paper equally well applies to gelatino-chloride. The first thing to be decided was the ratio of the volume of water to the area of paper.

One cubic centimeter per square centimeter of paper, *i. e.*, roughly, about 1 fluid ounce of water to every 4½ square inches of surface to be washed, was settled on. After the prints had been fixed the requisite time, they were plunged and separated from each other as rapidly as possible into the measured quantity of water. After soaking for five minutes, two pieces were taken out and dried, the remainder being transferred to another dish, with the quantity of water diminished in proportion to the area of the paper removed.

This operation was carried on till the last pieces received ten soakings of five minutes each in ten different changes of water.

A portion of each washing water was set aside for testing with permanganate of potash, iodide of starch and sulphuretted hydrogen dissolved in water.

It was found by experiment that one drop of each of the solutions of permanganate and iodide of starch produced a distinct coloration in a test tube, filled with water, 6 inches long, when looked through lengthwise at a sheet of white paper.

In order to ascertain when the hypo had done its work, such a number of drops of the reagents were added to the water in similar test tubes so as to just match the tints in the test tubes filled with plain water and one drop of the reagent. The number of drops required in each case, and the amount of silver left after each washing, will be found in the table below. The ash was then treated as is usual in such operations, the precipitate was then collected and weighed and the silver estimated in the ordinary way.

The following table gives the results obtained :

Change of Water.	Silver in ¼ Sheet.	Number of Drops of—		Sulphuretted Hydrogen.
		Permanganate.	Iodide of Starch.	
1..........	·0055	More than 10	More than 10	Brown color
2..........	·0045	“ “ 10	“ “ 10	Faint tinge
3..........	·0040	2	3	No color
4..........	·0040	1	1	“
5..........	·0044	1	1	“
6..........	·0042	1	1	“
7..........	·0044	1	1	“
8..........	·0040	1	1	“
9..........	·0043	1	1	“
10..........	·0040	1	1	“

These results show that after the third washing the amount of silver becomes constant, and that further washing has no effect as regards reducing the quantity of silver left in the paper.

It will thus be seen that it is not necessary to wash prints for a long time ; in fact, long washing only softens the paper and makes it stick when trying to glaze it, and also tends to discolor the whites. One of the simplest ways I know of to wash prints is to cut a groove in a cork and place it in the waste-pipe or sink, turn on the tap and regulate the inflow until it equalizes the outflow, keep the prints moving all the time, and fifteen minutes will be found to be ample time for their thorough washing. The advantage of this method is that the supply salts are taken away from the bottom and a constant soluble of fresh water is given to the prints. This method is, of course, only applicable where there is running water. In cases where this is not to be obtained, several changes and keeping the prints moving all the time will be found to answer the purpose just as well.

ADVANCE IN X-RAY WORK.

IT is probable that few, if any, new applications of science have ever been received with the avidity or worked up into such a state of advancement in so short a time as have the various forms of X-ray energy. The discovery and application of this power came when the scientific world seemed waiting to receive it, and it has been the subject of a vast amount of research and experiment. The result is that to-day it is in practical use in almost every large hospital in the civilized world for the alleviation of suffering and the saving of life. It is being largely introduced into colleges and high schools, and in every phase of its existence is entering into the education of the world. Results which only little more than a year ago required exposures of two hours are now made with about four minutes, and it bids fair soon to assume an added dignity when it may be admitted in our law courts as legal evidence in cases on trial. Not only has the time of exposure been materially shortened and the quality of its work much improved, but the application of the static machine for inducing the spark has lessened the cost greatly and done away entirely with the cumbersome and disagreeable wet battery, so that it is now easily within the reach of all who may wish to experiment with it. For examinations, where a permanent record is not required, the fluoroscope has taken the place of the dry plate, and by its means the operator may make his examination and actually see with his own eyes on the fluoroscope screen the object under examination. By means, too, of an appliance recently perfected by Mr. John Dennis, of Rochester, N. Y., called the fluorometer, objects which throw a shadow in this medium may be accurately located by means of what may be called sights, which, in connection with a series of gratings equidistant each from the other, enable the operator to accurately determine the position of the object sought by making two observations and noting their relations to the squares of the gratings in each.

With increasing familiarity, new and important fields will be opened for the application of this wonderful energy, and much greater ability will result in its use. A close scrutiny of the daily and scientific press is necessary to a full knowledge of how important a part it is even now playing in the world about us.

THE HAND CAMERA FOR TIME EXPOSURES.

IN an article on the above subject, which recently appeared in *Photography*, the author, "C. J.," hits a phase of photographic work that, simple though it is, oftentimes results in failure and disaster, where better things should be looked for. His advice will be read with advantage by others than beginners. He says:

"It appears to be necessary sometimes to warn beginners that hand cameras do not increase the sensitiveness of the plates or films used in them, and that a short exposure is by no means more effective when given by means of a hand camera than if any other kind of instrument were used. The notion that it is certainly exists, and the only excuse that one can find for it is the shortness of the focal length of the lenses used with hand cameras, which leads to a greater rapidity than can generally be obtained with lenses of longer focal length and larger plates, for two or three reasons. The aperture does not need to be reduced so much for the sake of depth of definition. The shorter the focal length, the smaller is the scale of the image, the position of the lens being the same; and the smaller the image, the less obtrusive are those blank portions due to under-exposure. But these considerations and any others that might be brought forward are determined by the lens rather than by the camera, and they apply with equal force to any similar lens of the same focal length, whatever camera may be employed. The only sacrifice made by using a hand camera on a stand is that it cannot be so readily brought into position. A hand camera, just as much as any other camera, should always be supported in the firmest possible way. If there is no table, bench, tree, or other object that can be made useful as a support, then the photographer may be able to sit down, or steady himself by leaning against a tree or a wall while he holds the camera in his hands. Any available method of steadying the camera, either directly or indirectly, should be taken advantage of, because the better the camera is supported, the longer is the exposure that may be given without failure due to movement.

"When properly understood and used with skill, a hand camera becomes a very useful tool, because of the many purposes that it will serve. It greatly curtails the value of this type of instrument to associate it only with instantaneous work. In very many cases, comparatively long exposures can be given, but this must depend upon the stability of the support. A man standing alone with the camera in his hand pressed against his chest or held in any other firm manner can give exposures of the twentieth of a second without special care to prevent movement. A tenth of a second exposure requires more care, and, while a quarter of a second or even half a second can, perhaps, be successfully given by some, the majority would find much uncertainty as to their ability to hold the camera still for such periods. But, if the body could be steadied against some fixed object, or if the photographer were able to sit down and take the camera on his knee, these longer exposures become easy. And if the camera itself can be held upon or against an immovable object, the time of exposure may be still further prolonged without undue risk, although it may have to be held to prevent it from falling. A firm support upon which the camera may be safely left for any desired time is not often available, but may sometimes be obtained by the exercise of a little ingenuity. In ecclesiastical buildings there are generally chairs, sometimes tables, monuments, the bases of pillars, window-sills, book boards, and other places, one or other of which may be suitable. It is sometimes convenient to place two chairs back to back a little distance apart, and rest the camera across the top rails of the two backs. To readily take advantage of such supports, two sides of the camera should be quite flat, all the necessary hinges, fastenings and working parts being arranged upon the other sides and the ends. And as ledges and chair seats are often sloping, it is desirable to have something that is convenient for wedging up one end or side of the camera when that is necessary to level it. A pocket-knife is often handy for this purpose, or a book or short stick may be available. The possibility of using very much larger apertures with lenses of short focal length and comparatively small plates renders interior work rapid as compared with the exposures necessary for larger plates. One may work often in one-fourth or one-tenth of the time, and the advantage of this on some occasions is too obvious to need pointing out.

"The two chief disadvantages attending the use of ordinary hand cameras, quarter-plate or smaller, for interior work are the smallness of the resulting print and the uniformity of the angle of view. The first can be obviated by enlarging when general views are concerned, but if small detail is important it is better to give more time and use a larger camera, for enlarging always tends to lead to a loss of the finer detail. The uniformity of the image angle is overcome in some hand cameras by the provision of sufficient focusing power to allow of the use of two or three different lenses as occasion may demand, and this, of course, is very advantageous, but it is a question that each must decide for himself as to how far it is desirable to complicate and increase the weight of a camera that is specially intended to be easily carried and rapidly manipulated. If, however, one is content to have smaller pictures in proportion as the angle of view is reduced, then one lens is all that is necessary. Personally, we incline to favor simplicity in a hand camera, and to use another kind when it is necessary to be able to use a selection of lenses and to get adjustments that are more conveniently arranged for than on the usual patterns of folding cameras.

"There are many other types of work besides interiors for which hand cameras are excellently suitable, or may be made so by a simple adaptation. With the full aperture of from *f*/6 to *f*/8 and a focal length of about 6 inches, the optical conditions are very similar to those that often obtain in portraiture. Indeed, the ordinary *carte* lens when used "with a stop" would give as nearly as possible the same results. We know that hand cameras are sometimes used for taking portraits, but there are many workers who do not know how specially well adapted they are for the purpose when the *carte de visite* is large enough. For full-length figures, especially out of doors, of the size named, we do not think that any other arrangement is more convenient, though this hardly requires what is called a "time exposure." And for portraiture in studios or rooms within the limits stated, a hand camera provided with a focusing arrangement and a rapid lens is not only an efficient, but a very desirable form of apparatus.

"An especial feature in non-folding hand cameras is that the plate and the lens are generally more firmly fixed with regard to each other, and if properly adjusted, are likely to be more correctly placed than in ordinary folding cameras. For copying work, on a small scale, of course, this is a great advantage. Many painters like to keep small photographs of their pictures, and nothing is more handy for obtaining these than a judiciously arranged hand camera. Focusing can be done by measurement with a precision and rapidity that cannot be attained by other methods except under specially advantageous circumstances. And if it is desired to copy small sketches or studies on a larger scale than the limits of the focusing range will permit, a spectacle lens may be adapted in front of the lens, and by the use of a medium-sized diaphragm any defects in defining or covering power that it causes may be obviated. When using such lenses, focusing must be done by trial photographs, but it does not take long to do, and it is done once for all."

OUTLINE DRAWINGS BY TELEGRAPH.

A VERY decided improvement in methods of telegraphing drawings is promised within a short time, and when worked out will be traceable to the efforts of the well-known inventors, Mr. Thomas A. Edison and Patrick Kenny. This work will be a modification of the existing methods, but the numbered squares and lines will be done away with entirely, and the process of sending the illustration will, after the drawing is made, be entirely automatic. Mr. Edison says that it is now quite possible to send pictures by telegraph with as great freedom as messages, and that he can transmit from a distance of 1,000 miles, or less, any outline drawing not more than 5 inches by 3. The limitations of distance or of detail to the drawing can readily be overcome in new machines of greater power and size. The method, as described, is for the artist to make an outline sketch with a hard pencil on soft paper, causing the lines to be slightly indented in the paper itself. A photograph may be used as the basis for tracing, or any original, provided that the artist's drawing is a line interpretation. After the sketch is made it is wrapped around a little cylinder placed in contact with the sender, and by the pressure of a button the cylinder revolves more or less rapidly at will, and the lines are built up at the other end of the wire on another paper, working on a similar cylinder. As the paper on the cylinder at the sender revolves, a small finger of metal passes over its surface with a very delicate touch, and whenever a line of the indented sketch reaches this finger, it for an instant sinks into the line, making an electrical connection and operating at the other end of the line a similar finger on the receiving cylinder. This paper on the receiver having been previously treated, the impress of the finger at the point of contact changes the color of the paper at that particular point, forming a dot of exactly the same width as the indented line from which the finger received its impulse. With each revolution of the receiving cylinder it is dropped an infinitesimal space, and the dots formed on the next revolution take their places below those previously made. Thus with the entire number of revolutions necessary to complete the sketch, forming a series of lines composed of dots, each revolution tending to build up the length of the lines which began with a single dot each.

TO AMATEUR PHOTOGRAPHERS.

THE Photographers' Association of Ohio will hold their seventh annual convention and exhibition of photographic work at the City Hall, Columbus, O., August 31 and September 1, 1897.

The following from our '97 prize list is of interest to amateurs:

Special Class.—Amateur photographers—open to the world.

1. Picture.—No restriction as to size or classification.

First Prize.—Gold medal.

Second Prize.—Silver medal.

Third Prize.—Bronze medal.

All exhibits are eligible to the salon (a permanent collection containing the gems of the annual exhibitions, owned and controlled by the association), a certificate of honorable mention being awarded to all having pictures selected for the same. The salon jury, or hanging committee, are artists of national reputation. Prints are judged with regard to their pictorial values.

We realize that many of our best photographic productions are by amateurs, and believe they merit appreciation.

We hope, this year, to have one of the grandest exhibitions of photographs ever held, and kindly ask your assistance. Send us a print and meet with us if possible. Entry fee, $1.

Entry blanks and further information may be obtained from

L. A. DOZER, *Secretary P. A. of O.*,
Bucyrus, O.

OUR ILLUSTRATIONS.

THE frontispiece is reproduced from one of Mr. Falk's negatives, and is printed on Buffalo Argentic paper by the Automatic Printing Company, of New York, who are equipped for the production of work of this nature "by the mile." The negative is exposed, and all the operations of development, etc., carried on automatically—the paper being fed in long rolls over the negative, and exposed for the required time to very powerful electric lights, and then passed successively through the developing and fixing baths and over rollers through a shaft which is supplied with artificial heat, where it is dried and made ready for cutting. This method has great advantages for commercial printing, or for any work requiring a large edition of prints in a limited time.

The very charming child study on page 214 is from the studio of Mr. Collyer, of Waterbury, Conn., and it is difficult to suggest much improvement in it. The pose of the child is beautifully natural and unaffected. The subject is one, however, that has lost a good deal in reproduction, and should be seen in silver to appreciate its delicacy fully.

All copy for August issue must be in our hands by July 15th.

PROCESS WORK

In *Process Work and the Printer* for May, aluminium is very highly commended for use in place of lithographic stone or zinc. It is conceded that the earliest patent for this use of aluminium was taken out in the United States in May, 1890, by Messrs. Mullaly & Bullock, which was in 1891 extended to England, France and Austria, since which date other patents have been obtained in these countries which will be invalid if the first patent is maintained. The question is raised, however, of the validity of the American patent, giving as a reason the belief that the use of aluminium very much antedates the patent itself. In any event the experimental use of this medium in some of the largest lithographic establishments of the country have shown its perfect adaptation to the process. Some of its advantages over zinc as a substitute for lithographic stone, being: 1st. That it holds water better in damping. 2d. It is free from the light spots that so often occur on zinc plates. 3d. It will bear washing out of the image with turpentine much oftener than zinc. 4th. That the print appears sharper and more full bodied. 5th. That the work shows up with full contrast on the white surface of the aluminium, and in addition to these points, the fact of its extreme lightness and ease of handling.

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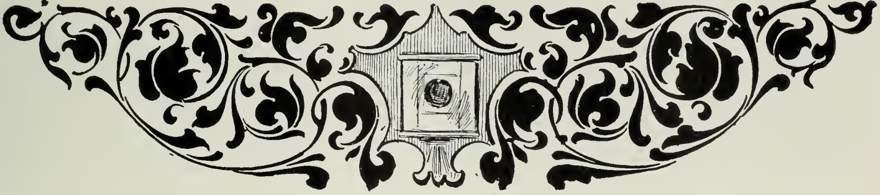
An esteemed continental correspondent writes that, so far as he can ascertain, the so-called "cold enamel" process on zinc is based upon the employment of an alcoholic solution of a salt instead of acids for the etching mordant. Those who have tried it pronounce it to be thoroughly reliable. The following formula for etching, which was given by Mr. Cooldjenko, at a meeting of the Photographic Section of the Imperial Russian Technical Society, may throw some light on the subject:

Dry crystals of chloride of iron	200 grams
Dry chloride of zinc	30 "

rubbed down in a mortar with 300 cubic centimeters of alcohol, specific gravity 810, when dissolved, 10 cubic centimeters of nitric acid, added by degrees.—*Process Work and the Printer.*

SOCIETIES



THE fourteenth annual meeting of the Providence Camera Club was held on June 1st, at which time reports of the year showed a good balance in the treasury and a very flourishing condition in general. The following officers were elected for the ensuing year : President, F. B. Wilbur ; Vice-President, W. P. Mather ; Recording Secretary, F. E. Leonard ; Corresponding Secretary, J. E. Davison ; Treasurer, Edmund A. Darling ; Librarian, C. A. Stoddard. Executive Committee: J. A. Miller, Jr., C. A. Stoddard, F. C. Hodgman, J. H. Tucker, R. C. Fuller.

* * *

At the annual meeting of the Brooklyn Academy of Photography on June 7th the following officers were unanimously elected: President, H. B. Fullerton ; First Vice-President, Samuel Baron ; Second Vice-President, F. M. Lawrence ; Corresponding Secretary, W. B. Dudley, Recording Secretary, W. Arnold ; Treasurer, W. T. Wintringham ; Curator and Librarian, A. F. Ormsbee. Trustees, A. A. Goubert, John Merritt, Starks W. Lewis, A. R. Pardington and Frank La Manna. The academy is now entering upon the twelfth year of its existence.

* * *

The seventh annual exhibition of the Photographic Department of the Brooklyn Institute was given during the last week in May, which, while not quite as large as last year, was on the whole better in quality of work shown. The judges were Joseph Boston, D. L. Elmendorf and William H. Coughlin, and by their decisions first prizes were awarded to Frank A. Perrett, Mrs. C. H. Burdette and William J. Bryant, and second prizes to Meyers R. Jones, Charles H. Horse and to William J. Bryant. A collection of views of the Grant Parade, by T. K. Hastings, and an exhibition of lantern slides made by the members, attracted a good deal of favorable notice.

* * *

The annual exhibition of the work of the Harvard Camera Club took place the middle of May, and was, though rather small in number of prints exhibited, of exceptionally good quality. H. Emerson, '96, was awarded first prize.

* * *

The officers of the Association Camera Club, of Trenton, N. J., which has just been organized are : President, Oliver Kemp ; Vice-President, Henry K. Naar ; Secretary-Treasurer, Grant Castner. Committee on Rooms, Messrs. Kimble, Applegate and Castner.

The Association has placed at the disposal of the Club two rooms, which are now being fitted up with all requisites for the work of the Club.

* * *

A new camera club was organized in Savannah, Ga., on the 11th of June, with the following officers : President, Dr. William F. Aiken ; Vice-President, Mr. W. E. Grady ; Second Vice-President, Mr. Samuel M. Whitesides ; Secretary-Treasurer, Mr. Charles E. Yonge.

* * *

The *Youth's Companion* announces a National Exhibition and Photographic Contest for 1897, to which every amateur photographer in the country is invited to contribute, with the assurance that his work will be placed on exhibition and proper credit given ; three cash prizes, amounting to $175, are offered, and certificates of honorable and special mention. Particulars may be obtained from *Youth's Companion*, Boston, Mass.

School of Practical Process Engraving

OUR Reviewer.

Volume 1, No. 1, of the official organ of the Camera Club of New York, under the title of "Camera Notes," comes to our table, and is a very creditable journal. It is the intention of the Club to publish this journal quarterly and to make of it, as we understand, a record of the doings of the Club, coupled with comment and criticism on subjects of interest photographically. The typographical get-up of the journal is very tasty, and reflects credit upon the Publication Committee.

An extremely neat and tasty little souvenir of Fair Haven, Vt., comes to the Bulletin from E. E. Reynolds, of that town. Mr. Reynolds has arranged a number of photographs together, grouping them with dainty borders and flowers, and reducing them in size so as to make a half-dozen different combinations, each of which he has mounted on a cabinet card, and fastened them all together with a tasty ribbon binding at the ends. The effect is very pleasing, and the idea is one that may be followed with advantage and profit by many a photographer in small towns.

The programme of the fourteenth annual jubilee convention of the Photographers' Association of Canada is a well edited and finely printed booklet of 26 pages, and shadows forth a successful and profitable convention. The entire get-up of the programme is of rather unusually good quality, and shows that our Canadian friends are thoroughly in earnest in their determination to do big things at their next meeting.

A book of specimens is received from the Franklin Company of Chicago, which shows a high grade of work in engraving and printing. The frontispiece is an example of printing in colors from four half-tone plates, and is very satisfactory in its rendering of landscape effects. The remainder of the book contains examples of portrait and landscape work from photographs and wash drawings, combinations of both, and a wide field of commercial and catalogue illustrations. This specimen book is an elegant exposition of the advance in process work and a credit to the Franklin Company.

"The Year-Book of Photography and Amateurs' Guide" for 1897, being Vol. XXXVIII of this well-known publication, is before us, and contains the usual amount of good things photographic. The illustrations are superior to many of the previous issues, and the articles are full of valuable information and suggestion to photographic workers.

Messrs. Penrose & Co., of London, have just published their 1897 Catalogue of Requirements for Photo-Mechanical Processes which is a very elaborate octavo of 220 pages, containing full lists of goods used in photographic and process work. A notable feature in this volume is the presswork, which stands high for any work and which is seldom seen in catalogue printing on the other side. We note with perhaps a shade of vanity that the engraved half-tone which serves as a frontispiece bears the imprint of a well-known American electrotype company. The price of this catalogue is 1 shilling.

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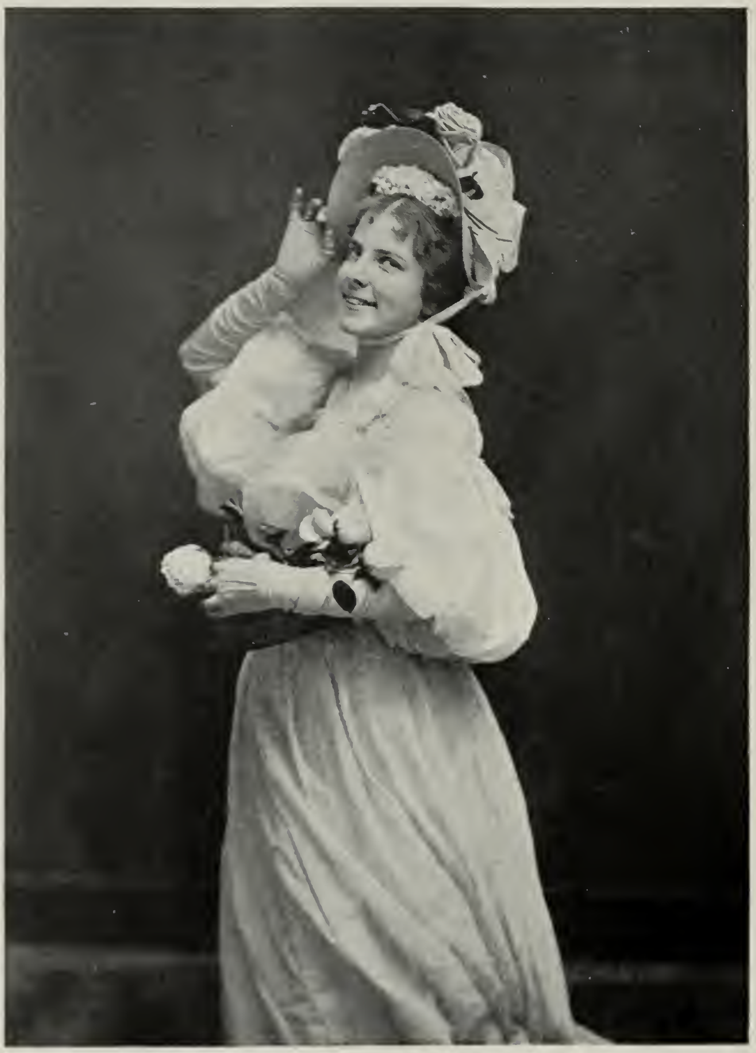

PHOTO BY DE NOS & HOGUE,
SOUTH BEND, IND.

NEGATIVE MADE ON CLIMAX PLATE.

STUDIO WORK.

ANTHONY'S

Photographic Bulletin.

EDITORS

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.
W. I. SCANDLIN.

Vol. XXVIII. AUGUST, 1897. No. 8.

THE SCHOOL OF PHOTOGRAPHY.

WE believe that if any one part of the Convention work could be picked out as being of more advantage than any other part the consensus of opinion would be that the School of Photography was by far the most valuable and instructive of any one feature of the Convention programme. Every morning during the Convention there assembled in the large theater building, which was used last year as the auditorium, a large number of Convention workers who listened to an informal but thoroughly practical dissertation upon the points that come up in ordinary darkroom and studio work, including such matters as printing, toning, retouching, etc. This talk was given by Mr. H. M. Fell, who treated the subjects always from a very practical, commonsense standpoint, offering suggestions for various methods of overcoming difficulties, which were new to very many present. The feature of the morning session was that it was informal, and that each and every one present were at perfect liberty to ask questions as they were suggested by the demonstration and remarks of the speaker.

On the afternoon of Tuesday Mr. Pirie MacDonald demonstrated practical work under the skylight, showing his method of using the single slant light, and demonstrating in a very clear and lucid manner how to obtain some of the effects for which he is so well known.

Wednesday afternoon a practical demonstration of skylight work was given by Mr. J. Schneider and Mr. Percy King, on which occasion over thirty negatives were made, all of which were, from a technical standpoint, perfect. The points brought out on this demonstration were the right and wrong way of working, and the negatives above mentioned were made to show the errors, and how to overcome them. These negatives were retouched, printed from, and the prints toned at the next morning's demonstration in the school.

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On Thursday afternoon the school was not in session, owing to the excursion, but on Friday Mr. Charles Hetherington gave a number of general hints on operating, and was followed by Mr. Fitz Guerin, of St. Louis, with an admirable demonstration of how the beautiful effects in his flashlight work in genre studies were obtained. It was a revelation to many present who had seen some of his beautiful compositions to discover that many of them were posed in a horizontal position and lighted from above. One was particularly charming, that of a dancing girl, showing the hair and drapery flowing gracefully out in lines from the body precisely as if held in suspension by the air through which she was revolving, while the weight of the body seemed to be perfectly poised and supported upon the toes of the dancer. This subject, Mr. Guerin explained, instead of being posed vertically upon the feet, was suspended horizontally on a shelf made for the purpose in such a way that the hair and drapery naturally fell from the body of its own weight. Practical demonstrations of this pose and others were made before the audience, and cannot but be of great advantage to those who were present.

On Saturday afternoon a general résumé of the week's work was gone over, and with it closed one of the most successful and valuable meetings for instruction that the fraternity have ever attended. Mr. Fell and his able corps of assistants are to be congratulated upon the thoroughly business-like manner in which the school was conducted.

RADIOTINT.

New York, July 19, 1897.

WE are just in receipt of a copy of the *British Journal of Photography*, dated July 9, 1897, containing the following regarding the Chassagne radiotint process, which will undoubtedly be of interest.

Very truly yours,

E. & H. T. Anthony & Co.

COLOUR PHOTOGRAPHY.

To the Editors:

Gentlemen—I have had a good many inquiries addressed to me about the Dansac-Chassagne process, and, as I was to a large extent responsible for having drawn public attention in this country to the process, I am naturally anxious that those who feel an interest in the subject should have, at all events, such information about it as I can supply without a breach of the confidence I have been favored with.

First, let me say that the information I can publish does not include any details as to the materials employed or the method of their manufacture. The process is to be worked as a secret one, and the statements made to me as to the method of preparing the liquids used were confidential. This, of course, greatly affects the scientific interest of the question, but commercial considerations in this, as in many like cases, overpower scientific interest.

It is only quite lately that I have been able to make any fuller examination of the process, and such rough tests as I have made are very incomplete. They are, however, complete enough for me to say that, while they do not justify the claims originally put forward as to the completely automatic nature of the process, I yet cannot account for the results produced without admitting that the selective action claimed does to some extent exist; that the coloring matters applied to the photographic print have a certain tendency to attach themselves to those portions of the print which would be of a similar color had the image been reproduced in natural colours, and also that the colouring matters, when applied in succession, do so combine or react on each other as to reproduce, approximately, the tones or tints of the original.

There are also some other inaccuracies in the first description given to me which I should like to correct. It does not appear to me that a special negative, or a special print, is any advantage. It certainly is not necessary. The process can be applied to an ordinary print on albumenised paper, or to any positive or an ordinary gelatine plate. It does not appear to work successfully with some, at all events, of the more modern printing-out papers; nor is it a fact that during the process of treatment the positive has to be exposed to bright light.

This, it will be said, is different from the process as it was first described. Precisely. It is because of that difference, and because I was responsible for the publication of the first description, that I now ask you to allow me to inform your readers as to the real value of the process so far as I can estimate it at present.

The above conclusions are based on my own attempts and some (rather more successful) by my friend, Mr. Herbert Jackson. Judging from the work of the skilled operators whom I have watched in M. Chassagne's studio, I can only say that in their hands the process is certainly not entirely automatic. The operator requires to know generally what the colours should be, and the results largely depend on his judgment and skill in applying the colour in the right places.

But the practical outcome is that anybody, after a little instruction, can produce, with very great rapidity, coloured pictures which, as evidenced by the specimens shown in public, are of considerable merit. The result is obtained by first applying the liquids over the whole picture, and then working up the different parts of the picture by applying them locally. About the truth of this there can be no manner of doubt. Hundreds of persons in Paris have seen it done, and have admired the results. The difficulty is to satisfy oneself as to how far the process is purely mechanical and how far it is a matter of skill. A certain amount of skill is required; but, admitting this, it appears to me that, taking it at its lowest value, the process does provide a means of colouring photographs, and with approximate correctness, that has not previously been available.

Whatever may be the practical or commercial value of the process, it will prove of very great theoretical interest if, as an outcome, it should be conclusively proved that any monochrome photograph has even the smallest power of colour selection depending on the tints of the original, as, this once established, some of our current photographic notions would be revolutionised.

I am, yours, etc.,

Henry Trueman Wood.

THE ART EXHIBIT.

THE exhibit of pictures in the Annex was, we believe, the finest ever brought together by convention. They were, of course, not all of the same high quality, but, as a whole, the average was very high. The Annex was arranged in such a manner that all had equal advantage in exhibiting, and the lighting was excellently carried out.

Space will not permit any extended criticisms, and we leave the selection of the best to the judges who awarded the prizes. It is the purpose of the Bulletin to reproduce from time to time some of the best of these pictures.

Items of Interest

A VERY interesting meeting was held on the 3d of June in the rooms of the London Medical Society, on which occasion a new organization, under the title of the Röntgen Society, was founded, the rules and objects of the society being stated as follows:

1. To discuss the Röntgen rays in their relation to medicine, the arts and sciences.
2. To discuss and exhibit apparatus and methods in connection with the rays.
3. To hold periodical meetings for the reading of papers and discussion thereon, with exhibition of clinical cases, diagrams and all matters bearing on the Röntgen rays.
4. To provide a museum, library and Röntgen ray appliances.
5. To publish transactions in a convenient form.

The membership of this Society already includes most of the men prominently known in connection with radiographic work. It is believed that this Society will expand into a very important organization. The President, in a brief address on the scope and aims of the society, specially urged the necessity of having all shades of radiographic interest as fully represented as possible. The results of their work will be published from time to time. The president of the organization is Professor Silvanus P. Thompson, whose name has been so intimately associated with investigations on this line.

* * *

IT is said that a very charming positive may be made by treating a negative which has been exposed in the ordinary way, and developed with a weak pyro soda developer, in order to get all possible detail and high lights, with chloride of mercury solution. The negative, after being developed, fixed and washed, is bleached in chloride of mercury, and, after rinsing, a 1 per cent. solution of sulphite of soda is poured over it. As soon as the blackening action becomes visible on the surface of the negative, turn the plate over and watch the back until the shadows, which appear deep and dark, show the most delicate detail. The negative is then washed and dried, and the film side coated with black varnish or backed up with black velvet. It is important that the sulphite shall not act too long, or the effect will deteriorate.

* * *

WE have before us the programme of the American Association for the Advancement of Science, which meets in Detroit August 9th-14th, and note that papers are to be presented from the University of Michigan, Johns Hopkins University, Massachusetts Institute of Technology, Cornell University, Princeton University, Lehigh University, and from many of the most prominent laboratories in the United States. Although the programme contains few papers directly on photographic subjects, there are many on closely allied subjects of interest to every photographer. In addition to several X-ray papers, we notice one on "Arc Spectra," another on "Acetylene Light," one on the "Brightness of Pigmented Surfaces under Various Sources of Illumination," and another on the "Emission Spectra of Elements."

* * *

"The International Annual" completes with the volume now in preparation the tenth year of its existence, and the editor extends an invitation to all friends of the "Annual" to send for use in its illustrations one or more good subjects. The "Annual" for 1898 will show something of the immense progress that has been made in the past decade. It cannot better accomplish this than by showing a high class of illustrations, and we shall be glad to have our friends send us of their best. Due credit will be made for each subject used, and the reproductions and press work will be as perfect as it is possible to have them. Contributions for this purpose may be sent to the Editor, "International Annual," 591 Broadway, New York.

HENRY HUNT SNELLING.

MR. SNELLING, one of the oldest and at one time one of the best known workers in photography in the United States, died at the Memorial Home, St. Louis, June 24th. Mr. Snelling was born in 1817 at the Military Post at Plattsburgh, N. Y., where his early life was spent. After completing his college education at Georgetown College he drifted into photographic work, and in the early daguerreotype days was employed in the chemical department of our publishers, E. & H. T. Anthony & Company, during which time he published a journal under the title of *The Photographic and Fine Art Journal*, about the year 1851. About this time he became blind, but his interest in photography and editorial work still continued, and his contributions to photographic literature were quite voluminous. He was a man of more than ordinary literary attainments. Mr. Snelling had been an inmate of the Memorial Home since 1893.

* * *

We have to record the death of Mr. Charles D. Mosher, one of the oldest and best known photographers in the West, who was suddenly stricken with heart disease, to which he succumbed without regaining consciousness. Mr. Mosher had been in business in Chicago nearly thirty-five years, and had a very wide acquaintance with all the famous men and women of the western country. He was born in Saratoga County, N. Y., February 10, 1829, and was a charter member of the old National Photographic Society, and did much towards the advancement of his profession. He leaves a widow and two sons.

* * *

We have to record the death, on July 13th, of James Lawrence Murphy, who passed away at his home in Brooklyn after a long and lingering illness. Mr. Murphy was born in New York City in 1845, and was for a number of years cashier for the house of our publishers. He was a member of a large number of masonic organizations, and also of the Knights of St. John and Malta, and the Royal Arcanum. Mr. Murphy leaves a wife, two sons and a daughter.

MINUTES OF CONVENTION OF PHOTOGRAPHERS' ASSOCIATION OF AMERICA, HELD JULY 12-17, 1897, AT CELERON-ON-CHAUTAUQUA, CHAUTAUQUA COUNTY, N. Y.

Tuesday, July 13, 1897.

CONVENTION called to order by President C. M. Hayes, with these remarks:

"Ladies and gentlemen: We were so happily and cordially welcomed last year by a gentleman representing the business interests of Jamestown that it is thought it would be a pleasure to you to hear again from the Hon. Porter Sheldon." (Applause.)

Address of welcome by Hon. Porter Sheldon, Jamestown, N. Y.:

"Mr. President, Ladies and Gentlemen: It gave me great pleasure last year when I was asked by our people to speak words of welcome to the Photographers' Association of America, upon the occasion of their first visit to our city and to the classic shores of Old Chautauqua. You were then a stranger within our gates, and very few of us had any just appreciation of the association or of its great principles and achievements in the field of art; in fact, most of us were imbued with the popular fallacy that in photography there was no true art, that it was all along the same plan with the nickel-in-the-slot and you-touch-the-button-and-we-will-do-the-rest machine. Happily for us, you courteously gave our people the opportunity of viewing and studying the master-pieces of art which thronged the walls of your exhibition. It suddenly dawned on them that the cultured ladies and gentlemen of the Photographers' Association of America were not nickel-in-the-slot or you-push-the-button automatons, but that they were past masters in a great art.

"Happily for us we received that education from your exhibitions here last year, and I have on behalf of our people to thank you most enthusiastically for the services you rendered us in that behalf, and it occasions me enhanced pleasure this morning to address you, not as strangers, but as valued friends, and to bid you a thousand welcomes again to our vicinage, and to wish you the utmost success and pleasure in this, your attendance upon your second meeting here, Mr. President."

By the President, in response: "There is something to me in the combination of letters that make up the name Jamestown, and in the human concomitants of its citizens, all that needs to be written to spell out the words enterprise, broad-gauge business methods and spontaneous courtesy. There is, too, something about the combination of name and people, a seductiveness of influence as potent as the attraction of the magnet for the needle, and once anyone has been subjected to the influence you throw around your guests there is no breaking away from it—a sweet slavery that one does not want to destroy or give up. It has had such an effect on the craftsmen of the photographic art that we can see but one place in all this broad country to locate our home, and that with you. Each time that I have visited it in my official capacity I have felt more strongly the potency of the charm and been bewildered by a growing admiration that I thought had reached its climax when first I met so many of you.

"Take away, if you could, the grand and glorious lake, on whose shore we now for a second time hold our Convention, and you do not remove the most potent charm. It is, to be sure, the great diamond in the center of the setting, but its environments are nearly as rich, and there seems to be no other place where such a beautiful sheet of water could have as appropriately been located. It is not the scenery, not the delicious breezes, nor yet the location that holds us entranced, but you, yourselves. Your courtesy, your rare faculty of making us feel as if at home among our friends, that conspicuous, but not obtrusive, hospitality that makes the spot so dear to us all. Your men of business throw away, it seems, their cares and have but one object, the happiness of their guests, and devote themselves to this pursuit in a manner that far surpasses mere convention hospitalities, and to them and you is the Photographers' Association of America ever under lasting and tender obligations, obligations more difficult to discharge than a farm mortgage at 15 per cent. on a rocky farm, in a hard year, with crops at a discount, but of a pleasant and endearing nature.

"I could not help notice, while driving around your beautiful city last winter, the air of industry and the hum of enterprise, and in that hum what a contrast with the major part of our country. For where your wheels turned, others were silent; and the turning of the wheels of trade means as much to the photographer as to the mill or factory owner. I thought how happy, indeed, were those who had the

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These reports are published from the official records of the Convention, which, however, are only accessible to the photographic press on the condition that they are used verbatim. We publish them in this way, believing that the profession will be glad to follow the proceedings from day to day in their entirety, rather than to have curtailed accounts and abstracts of the proceedings from notes that would of necessity be incomplete and unsatisfactory—Ed.

pleasure to live always with you; for in every wreath of smoke that went upward until it reached some fleecy cloud, I saw a message of happiness to some worker's family, a growing business prosperity, and with it happiness and plenty.

"Where other chimneys of the country were as smokeless as the untrod ice fields of Greenland, yours were sending upwards their letters of content and peace. It was a delight that I shall not forget, and it made me feel that Jamestown, minus its lake and its beauties of scenery, was still the one place where thrift and prosperity made their homes and showered down their attendant blessings. Jamestown without Lake Chautauqua is grand and good, but with it, simply excels all others so far that the race seems like a procession, and there is none other than Jamestown."

By the President: "We have with us this morning our lecturer, Mr. Griffith, of Detroit." (Applause.)

Address of Mr. Griffith:

"Art is the embodiment of the senses. It is the higher feeling. It is the development of a temperament. It is the development of something that is better and nobler. The dividing line between the senses, let them be in the higher plane or in the lower, is very narrow, extremely narrow. We step from the lowest depths of despair and from the very lowest depths of discouragement, from the dark clouds of the valley into the sunshine of encouragement and enlightenment, and the border line between these two lands is extremely narrow. Show me the man that is so wonderfully developed that he sees and feels the best things, and I will show you a man who is equally variable in his nature, so that he easily steps down into the lowest depths. It is simply this disposition that is within us that makes us what we are and makes us appreciate the better things.

"The man who lives always in the shadow will appreciate more greatly the sunshine. If it was eternal sunshine, we would grow weary in time. I have stood on the western plains when the sun came up every day a blazing ball and the sky seemed never to have a cloud, when we grew so tired of this blue sky and glorious sunshine that we begged for a cloud that would come across the sun and make diversity. Then I have lived under a cloudy sky where it was so continuous that we prayed for one rift in the cloud that would send one ray of glorious sunlight across the sky. We appreciate a picture according to the feeling. I am sometimes asked what makes good pictures. I do not believe the man lives who can tell you what makes a good picture, but there are 50,000 that can tell you what makes a bad one. The man who looks at a picture and simply states that it is bad and doesn't tell you why it is bad is simply no critic at all, but the man who will step up to a picture and say, 'That is wrong,' and tell you why it is wrong, your ears prick up and every sentence becomes alive with interest simply because you feel (while you may not agree with him) that he knows what he is talking about. I sometimes think of a man who picks up a violin. He is a trained master. He picks up the bow and begins to play and there comes forth a harmony which is delightful, the measure is perfect and the harmony most wonderful, and you are pleased. Any of you who happen to be so fortunate as to have heard Ole Bull, that master of the violin, when he could step down to a house filled with thousands of people, have felt there was a man who put into that bow something of his own heart and soul, and when he began to play you closed your eyes and felt he was not only sending forth beautiful harmony to you, but he was taking you over hills that he used to roam 'way back in far-off Norway, and you heard the rippling of the brook and the splashing of the waterfall, and, by and by, when he had you fascinated, you found that the man raised his bow above his violin, and, keeping up the motion, it was a full minute before you realized the man was not playing at all, but simply carrying you on by the magnetism of his genius; that is the difference between art and simple mechanical movement. One man paints a picture and puts into it his best drawing and you look at it and say—"Yes, it is beautiful," and pass on—the man has failed. What is that secret of the old masters? We hear men say, "I would rather look at modern pictures," and so we would as a rule, because we understand them; but when you teach yourself to understand the spirit that was back of the master, when you teach yourself to understand the expressions, the spirit, which he wished to give to you, then you can understand that out of his brush there grew something of the spirit and soul of the man, and that he is telling you a story, and that story is a plain one to all nations because it is plain to all languages, because there is a spirit of man, there is something back of it, that expresses to you the story.

"What is all this to-day, that photography, photography is a mechanical art? Go over and look through those pictures (in the exhibition hall), and then ask me if photography is mechanical. The marvelous stride that has been made in the last two or three years, since men first began to understand that the camera was only a means to an end, which, if you learn to study and master, you can accomplish and make do what you want to.

"The great difficulty with us is that we show too much; the eye of the camera will disclose to the human eye that which it cannot see. It is simply because it is so intense and magnifies. True photography is based, not simply on things as they seem, but in teaching us to see things as they appeal to the human mind.

"There is a tree down by this lake shore, and each leaf of it is mechanically perfect. The Man who runs this universe is able to accomplish that, but no human man could do it. Now the amateur sits down and laboriously copies that picture or that tree without putting one thought or one minute of soul into it; simply like the Japanese or the Chinese, he servilely copies it, detail for detail. You remember the story where a man took a pair of pantaloons to a Chinaman to make a pair of pants from, and, unintentionally, he took a patched pair. The Chinaman made the pants and he also made the patches, detail for detail. That is the way a great many artists work. The man of thought, the man of genius, will walk down to that shore and study that tree in all the changing lights. He will see that every breath of wind changes the contour of the tree, and he says to himself, 'Now I will catch the character of it;' he studies it until, with a few rapid touches, he has got the tree with all the changes of atmosphere in it and all the changes of light, That man has got the character of it, the same as you know the walk of your friend in the outer corridors; he has a certain step—you have got the character of it. In the eye of the camera, you place the subject before the camera, a snap and it is gone. Now, I understand that there is bread and butter in all of this, unfortunately of the earth earthy, but we have to have it, and I understand that you can not spend hours over each portrait, but every now and then there comes into every man's gallery a face and he understands that there is his ideal, there is a model which he can use and make something of it.

"The most famous portrait-makers of the world are the idealists, who yet stray so far away from art that they catch the real. I notice in an art school if a model is put before them, and he has an unusually developed nose, that they see that nose and give it an added development, because it intrudes upon them. Now, the true artist will catch the character of that nose, but will idealize it so that it does not intrude upon you. Why should the poet, the dramatist, go to the classics for his models? Simply because Homer is the ideal; he lays before them such marvelous beauties in such simple manner, they discover they cannot go beyond that The sculptor goes back to the Elgin marbles to secure the best types, because they are the ideals of character sculptured: men dreamed and gave ideals to their dream. Why not go to Rembrandt, the master of the old artists? If you study their ideals, and see what makes their pictures great and keeps them through all these hundreds of years, you will understand what made them great portraits. It is said Rembrandt spent his boyhood hours in his father's old mill; he noticed, as the workmen passed back and forth before the narrow window, throwing its slanting beam of light, the face sparkle, and he caught that and made that his model, and his pictures have lived through all time; and yet they were not of handsome models; his own face is not handsome; it is a Dutch face.

"No one painted his mother oftener, and yet she was a plain old German woman, but he put into the portrait the womanliness, the spirit he caught back of it; seeing that, the face caught the sunshine and all else fell away. Now, he could happily translate that sunshine to you and at the same time keep his shadows clean, clear and transparent. The study of these things will make better workmen. Most photographers are glad to take Rembrandt as their model, and certainly there could be no grander model. Rubens knew how to make it appear as if there were blood under the skin, and yet he forgot that white was whiter by the side of black. Did you ever realize that the man never lived who could paint color too intense?

"Last night I was coming up on the boat and there was a brilliant cloud over there, and back of that was the sun glowing, and there was a tree of the most vivid green—have we any colors that could paint these? Then why do we ever say coloring is too high? Simply because it is put on with the skill of an Indian. They paint that green tree and they forget to put other things in harmony with it, and that green tree sticks out at you like some of the shirt collars and cuffs in some of the pictures over there. I realize that my cuff is much whiter than my skin, but, dear me, the collar comes out at you as if it would strike you with a club. Now, we subdue our colors simply because if I put white in this room—I will take out my handkerchief—I see that it is as white as any paint I can get; I put it out in the sunshine and it is a thousand times whiter. Now, God Almighty can do that, I can't. I have simply got white. I can't get it whiter. Burgmüller painted white horses, and he understood that if a white horse passes in the shadow of a tree it is lower in tone; if it comes out into the sunlight it is higher; he understood that. All portraiture is composition, In making a composition there should be some one point toward which the eye is attracted. I have always wanted to be a girl so that I could wear a red ribbon around my neck, and I wouldn't wear one for a thousand dollars. I am afraid of it, but I admire it in anyone that can wear it; but you want to hold it and keep it down.

"A nude picture drawn in a school simply for a mechanical training is no picture at all. It must be done by the student that he may become familiar with the human anatomy and with the human figure. If you show me a nude figure that expresses a story it is simply clothed in that story.

"Some time ago I wanted a model. I inserted an 'ad.' in a paper. An old Irish lady saw it and came in with her boy—a modest, quiet old Irish woman. She said: 'Sir, I saw your advertisement in the paper; will my boy do?' Well, with all due respect to the old Irish woman, the boy was the last one we wanted. He was crude and awkward. I said: 'Do you know what we want with him? Well, we put him on a pedestal, nude, and there are a dozen or more pupils about him and they draw from him something like this.' I took a nude picture out of a portfolio and set it up. She looked at the picture, then she looked at the boy, and then she looked at me. She says: 'Teddy, if I see ye making a spectacle out of yourself like that I'll beat the divil out of ye,' and then she turned and looked at me and said: 'Sir, he will be no dude.'

"I understood, then, why she looked so blankly at me when I said the word 'nude.' All the preaching in the world would not disabuse that woman of the idea of nakedness.

"You might put before her the most beautiful creation in marble and she would see simply that it was nude; but this is all the education of environment. It is the result of understanding. A Greek boy, with his shalma rolled about him and his sandals on, will talk to the finest audience and yet when the call comes for the start in the race, he throws aside his shalma, and, with nothing but his sandals on, starts out to win. The climate is warm and everything about him expresses Nature, and that is why they are such marvels. Did you ever stop to think that modesty was simply a matter of education. What we consider modesty in one country is not in another.

"I have walked through the Sandwich Islands and, with a gentleman, met a woman coming to a spring with one garment, and with that one garment she hid her face; it would not have been modest for us to see her face, and yet I say that that woman was just as modest as any woman in the United States. In France, a country noted for its immorality, a woman of the worst sort would hesitate to appear in the streets in any such condition as I have seen them in Guildhall, and there is only a narrow channel between them. Now, when we learn to see these things for their beauty, when we look upon them as the most wonderful creations of God Almighty, if you wish to use a nude figure, use it, but first be sure that you have a sentiment and a story to tell, and then your photograph ceases to be nude and becomes an object of beauty and admiration, and then, too, do not let the figure intrude.

"Did you look at that picture of Queen Louise? How marvelously the sunlight falls down upon her face, and how wonderfully the lower part is kept in harmony. You would in no wise associate any thought other than that of the highest in connection with such a marvelous figure. About five minutes of thought to one minute of work. The sun and the camera are but your workers. Use them judiciously, and with education and thought, and there is no limit to what photography may do.

"You say we can not accomplish color. Perhaps you may not; but did you ever look at an engraving or drawing and see color in it? You can. Some photographs over there are so true to Nature they suggest color to you. You can see color in them, and when you have beautiful color, you can see the absence of color in them. I have talked a half an hour, I think they are tired. I thank you." (Prolonged applause.)

Resuming, Mr. Griffith continued:

"I believe the only compliment I ever got in my life was that I didn't talk long enough. They say that sometimes at Detroit, and I have talked forty-eight times in the last winter.

"My thoughts are simply the inspiration of the moment. I have sometimes wished I could arrange my thoughts in pigeon holes and then, when I wanted them, reach for them, but I find that, when I begin to talk, it is more like a badly packed trunk, and I have to go digging through a great mass of materials to find what I want. We many times hear men say: 'I dashed that picture off in a half hour,' but the greatest success in this work is the result of hours of study of a man who will go and look and study again and again, and will find that before he has touched the brush to the canvas he has spent hours and days of labor. I knew a gentleman who illustrated Gray's "Elegy in a Country Churchyard," and, by the way, you have probably heard that Gray's "Elegy" was written in one evening. Well, it was; but he told a friend that he had labored over it ten years. Well, this man would take a canvas and stand it before him this way and look at it for days, and then turn it and look at it in another light. Then, when the thoughts came to him, and he had all the thoughts thought out, he grasped his brush and in half an hour dashed out something that was simply marvelous. It was the work of days and weeks before. They tell me that I talk without notes; do you not suppose that all the way across the lake last night and all the way from Detroit I wasn't making notes? The man who tells you 'I did that in a few minutes,' is simply a fake. He is striving for effect, and if he secures it it is an accident, and accidents are few and far between that are successes, so that when you start out with any labor, even the most simple thing, understand that every part of it will require several thoughts. I suggested to the Convention two years ago the ideal photograph gallery. Mr. President, I believe I talk again on Thursday—I will keep some things back. I have an ideal photographic scheme. It is to build a central studio in which there is every ability to call forth all the desires of every man or woman. There are around that working studios opening into this central studio. The attendant will meet you at the door and say: 'Well, the proprietor is very busy, amuse yourself a little and then he will attend to your wants.' You go in. There lies a violin. By and by you see some music beside it, and then you begin to play. You become wrapt up in what you are doing. The attendant comes in and states to you: 'Call to-morrow and you can see the proof.' The man has caught you, but he has caught you unaware when the feeling was coming out of your face. You sometimes say a picture does not look like the original. What is it? The artist has made you stand in a position entirely foreign to your make-up, and yourself has crept out and the man that appears to the world has crept in. We all live two lives. If the best man in this house had his inner life written up here, he would walk down the street with his hat over his eyes. It is this outside life that you wish to give to the people. It is the inside life that your friends want and appreciate. The most stubborn and ungraceful of all human characters unbends and softens in the presence of his friends and his family, and it is that unbending that we wish to secure—that the photographer must secure.

"We sometimes see a portrait and we say that is brutally like the man. You don't want the brute part. You want the ideal, and when you strive for and secure that, then you have made perfection of photography. It is within your grasp. I thank you." (Applause.)

By the President: "It is with great pleasure that the executive can announce that Professor Griffith will speak here Thursday morning. While there is a very fair attendance, still I think we ought to make it a point to have this house entirely filled. I think it is well worthy of our strict attention."

By Mr. Todd: "Mr. President, I have listened with great pleasure to Mr. Griffith's address. It is the third opportunity I have had of hearing him talk to photographers. On every occasion, he has risen to a greater height. You have shown him by your applause that to-day he has made the highest flight of all. I merely want in a formal way to put on record the thanks that you have already offered, and so I make the motion that a vote of thanks be tendered Professor Griffith for his very entertaining lecture. I regret that a great number of the members of this Association are not here to hear Mr. Griffith. We have here a divided house and I think it would be only courteous if we close the other place while meetings are going on here. I am not an orthodox member of this association, and so it would not be right of me to make a motion that the exhibition house should be closed during the meeting, but I throw out the suggestion."

By the President: "There has been a motion made that Professor Griffith be tendered a vote of thanks. Those in favor please say 'aye'; contrary, 'no'; carried."

By the President: "In reference to the suggestion of Mr. Todd that the Annex should be closed during the session of this Convention."

By a gentleman in the audience: "I move you that the Annex of the Exhibition Hall be closed at a quarter after ten until the close of the morning session, also that the school close at the same time. This morning I noticed that there was a considerable number of the people located at one point, a number at another, and cries were going on that we were to meet at a certain time and I think we should let the meetings come together as closely as possible."

Motion seconded by a gentleman in the audience.

By the President: "This Association really has no control over the School of Photography."

By some one in the audience: "That school is to close, we were told that this lecture would not commence before a quarter of eleven."

By the President: "There has been a motion made that the Annex be closed from a quarter after ten until the close of the regular business session. Are there any remarks?

"Those in favor say 'aye'; contrary, 'no'; carried.

"We will detain you but a few minutes longer. There is one important report here that we might listen to, which is a very valuable one, the Treasurer's Report of last year, Convention of '96. It will take but a few moments."

Mr. Bowersox then read the Treasurer's Report for '96. [Not yet ready for publication.—Eds.]

By the President: "What is your pleasure regarding this Report as read by your Secretary?"

It was moved and carried that the Treasurer's report for 1896 be adopted.

By the President: "Any more communications, Mr. Bowersox? Read them, please"

A telegram was read from Emily L. Cramer, St. Louis, Mo., as follows:

"Pres. C. M. HAYES:

"Regret that I cannot be with you. EMILY L. CRAMER."

From EDWARD L. WILSON, New York:

"Pres. C. M. HAYES, Photo Convention, Celeron, N. Y.

"Illness prevents my attendance with you; accept greeting and cordial good wishes. EDWARD L. WILSON."

A letter from E. & H. T. Anthony & Co., New York, read:

"JULY 12, 1897.

"To the PHOTOGRAPHERS' ASSOCIATION OF AMERICA:

"In regard to the Radiotint materials so recently advertised by us, we regret to say that a large consignment of photographs colored by the Chassagne method which Mr. Chassagne promised to send us for exhibition at the Photographers' Association of America Convention, has not yet been received, nor have we received any of the liquids except in experimental quantities, as we did not wish to order a quantity shipped until we were sure that the agitation of the liquids by the ocean voyage would not affect their quality. Two different sample lots of these liquids were received by us and we were unable to obtain satisfactory results with them, and therefore cabled to have one of Mr. Chassagne's demonstrators come over and see whether the trouble lay with us or with the liquids. This demonstrator has arrived, but has been unable so far to produce satisfactory results. Just why this is, it is impossible to state as yet. Consequently there will be no demonstration of the process at the Convention. As soon as satisfactory results can be obtained on this side of the water, due announcement of same will be sent to those interested. Very truly yours, E. & H. T. ANTHONY & CO."

By the President: "To-morrow the Annex will have to be closed anyway while the judges are at work, and we will see how it drives the people down here to see us. As we have to leave this hall at 12.30, we shall have to put Mr. Sperry's address over. I am sorry."

Moved and carried, to adjourn until July 14th, at 10.30.

WEDNESDAY, JULY 14, 1897.

PRESIDENT HAYES'S ADDRESS.

"Ladies and Gentlemen: Almost from time immemorial it has been the custom of men gathered together for mutual improvement and benefit to council together out of their experiences, and from them draw lessons that may give profit to all.

"Like the sailor, who for days had been storm-tossed on the unblazed path of the ocean, without sun to guide his course by day, or stars to give him reckoning by night, he seeks the first opportunity to read the fixed guides of the heavens and learn from them his location and fix his course for the future, we can not do better than imitate him and by consulting the fixed status of our profession or business if you will, learn our latitude at the present time.

"It is alike the privilege and duty of the presiding officer, at a time like this, to make a tracing, however rude it may be, of the lessons of the past, and from them draw conclusions for the future. It has been the privilege of my predecessors in office to point out the marvelous strides toward prosperity and the individual march of certain ones to phenomenal success. I would that I could do so now, but alas, such is not in my power, yet with the low ebb of the trade photographic at present, we may still draw some lessons. A wise man has summed up in brief the fact that economy is the enemy of prosperity, but another, equally wise, has told us that inflation is the Nemesis of financial success, and in the ebb tide that follows comes the reaction of the flood tide of the other.

"Any data based on fiction must, sooner or later, bring a conclusion as false as the premise, and I would be remiss in my duty, did I not, in this brief summing up, hold fast to truth undeniable, however unpleasant it may be. We must concede that, while there have been some few isolated cases of unusual business prosperity among our craftsmen during the twelve months that have rolled by, yet prosperity has not been so great that we have been forced to get out sunshades and fans to keep us from being overcome by its fierce rays.

"It is but melancholy satisfaction, at best, to know that we have all suffered alike in this regard, and yet there is satisfaction to be gathered from the fact that while we have been with the rest of the world in our business depression, yet we have not gone backward, not only that, but we have gone steadily forward in our art, as I think the most sceptical will be convinced in the most cursory view of the exhibition in the Annex. What the merest passing glance at that exhibit will show is but accentuated and more than doubled by a closer and broader view, as I think you will all agree.

"Rising above the mere sordid view of our position, I would call your attention to the thought that we are showing progress as a direct result of these conventions. The miser view of the world is to get what you can and keep what you get, but what a narrow view is this. In such a view there would never be a convention, never a place for the Photographers' Association of America, and I would not be here now. We are bound together under that better motto of 'Give what you get and, by that same giving, get more'; for in the free exchange of ideas comes the acquirement of knowledge as well as the giving of it.

"It is not given to any one mind to comprehend the full details of any one thing, but in many minds and the free interchange of expressions come the myriad-minded expression that reaches the highest apex that we can get in any line.

"Let us, then, take a brief retrospective view of what we have done the past year, and I am glad to say that there have been no radical changes, no startling departures. I am glad of this from the fact that it proves to me that we are getting close to the exact science of our art. It is in new and untried fields that startling departures are found; in the undiscovered avenues of trade that radical departures are made, but not in the well-developed and thoroughly explored trades.

"We have made haste slowly, but in that very increase which is as certain as day, we have shown that steady progression that every one recognizes in the art display.

"It is much more pleasant to commend than to criticise and much more productive of good feeling, but it is by criticism that we improve. The fault of to-day when clearly seen but shows the way and is the pointing finger to the path for improvement to-morrow.

"The general proposition is that this Association can be successful only so long as it has sufficient members to make it strong, and it can only hold those members so long as it shows, to each, a reason for the retention of membership, with the attendant expense.

"The cost of operating such an organization is great, and we must keep the standard of profit to members at such a plane as will make the majority, in fact all, anxious to keep their membership by adding new features.

"To do this is no light task, for with all the antiquity of adage that there is nothing new under the sun, there is no truth more modern that is more true, and it will require, as it does now, the greatest effort on the part of the five chief executive officers to find new expressions of the old thought to interest our members. For the idea that it is our duty to our art to keep alive such an association, I have but the most open contempt. The word duty, to the ordinary mind, brings the thought of something unpleasant, and unpleasant things are the last one desires to consider. No, my friends, it is the merest clap-trap to talk of duty bringing us together on these annual meetings, and as soon as we lose sight of the individual benefit to be derived from such convention, we lay the foundation for flaw that will wreck this association, or any other. This is a very practical and very material world in which we live to-day, and, however much we may regret the fact, it is nevertheless true that, as soon as you show a lack of benefit from a membership, you provide a very satisfactory reason for a relinquishment of such membership, and that means a more or less speedy dissolution.

"It is all very well to talk about keeping out the manufacturers and the exaltation of the artist's side of the question, but no association of the scope of ours can be held together without the support, of a financial nature, that we obtain from the manufacturers; and utilitarianism is as necessary to our success, as members of this Association, as real art. We can not hope to hold their support beyond the time we can show them that it is of real benefit for them to join issues with us. The manufacturer will continue to contribute only so long as he can see the benefit of so doing, and while many may talk broadly of devotion, it is my experience that the question will drift down to a question of dollars and cents, the real rock bottom of all financial transactions.

"There were two questions decided at our last annual meeting to which I would invite your consideration at this time. The first was the appointment of State secretaries, and the other, the printing of a verbatim report of our meetings.

"I would be heartily in favor of the first, if we were on a basis to undertake the expense, and I believe all will agree with me that such a move is useless, unless we can in some measure provide that each Secretary shall be furnished with the proper materials of his office, the providing of office expenses in the way of postage and stationery. You will need no pencils to figure out the result of trying to do it when we have but $1,100 in the treasury, from which we must pay the expenses of our annual meetings. What would be left for the State secretaries is only represented by a minus sign.

"As far as the stenographic reports of our meetings are concerned, I would be most heartily in favor of them, if such a plan was within the scope of our financial abilities.

"There is necessarily much of a dry uninteresting nature in any annual meeting, and while every man is prone to delight in seeing his remarks in the official proceedings, I ask if it is wise to incur this expense. Our excellent trade journals are quick to perceive that which is of general interest to us all in these meetings and are extensive in their reports, so much so, that I deem it wise to recommend that the full reports be omitted, until such time as the Association can better stand the expense.

"The competitive features of our exhibits seem to me of the greatest good. Each member sees the progress of the others, and in that view derives new ideas which enable him to better cope with his competitors. New poses, new lighting, new methods, new accessories and new generalities spur him on to new departures, and in the very stimulation he is benefited, and from a financial standpoint derives profit.

"I have watched with keen interest each year's improvement in our exhibits, and have taken much satisfaction therefrom in the National Association, but could you have watched with me the vast improvement shown in the Michigan exhibits each year you would have been as surprised and charmed as I have been. Starting with a first exhibit which could not, by the greatest stretch of the imagination, be called creditable, I have seen that grow until our last meeting, when the display was of the most meritorious kind, and I am free to state that I doubt if ever a better State exhibit was shown. I think that in this statement Brother Bellsmith and Brother Todd will fully bear me out.

"In this connection I want to advise a little more freedom in expression, for I fear there is too much reserve—too much holding back through modesty. There is none so exalted that cannot derive benefit from the most retiring. Be free in expression, open in advice, and whatever idea you may have to advance, do so with the full knowledge that you are conferring benefit on your fellow-members. Remember that, as James Russell Lowell says, 'The same thought, 'though oft expressed, is his at last who says it best,' and in your very expression of some old idea you may give it a new meaning, and not only benefit others, but yourself as well, for no man can confer a benefit on others without the reflected sunshine of such benefit brightening his own life. There is nothing more true than this, and in your explorations you may open a field of discovery that, like bread on the waters, will return to you a hundred fold.

"On the question of a permanent home for the Association, I would recommend that we make haste slowly, and not act until the most mature deliberation shall show the best way.

"On the question of giving medals for superiority in work, I have very decided ideas. It is a question in my mind if the richest medal that could be wrought of purest gold, studded with the purest diamond from the fields of Brazil, would convey more of merit than a simple ribbon with the insignia of 'first prize' to the minds of the ordinary customer. It is not this intrinsic worth of the insignia as much as the simple fact that draws the attention of the waiting world.

"The amalgamation of the State and national societies also demands serious consideration, and it is well to think deeply before we decide on this. The question of expense and benefit should be carefully considered, and I must admit that I have as yet not been able to reach a convincing stage in this matter. There are so many things to be considered and carefully weighed that I would rather trust to the majority of interest than insist on any opinion that I might advance under the hurried consideration I have been able to give the subject. A general proposition to which I would invite your attention is that it is better to cling to the things which we know have proved efficacious rather than fly to untried plans that may mean failure."

Mr. George G. Rockwood, of New York, next talked about "Odds and Ends," "The Use of Lenses," "Single Slant Lights," "Have the Public any Rights which Photographers Should Respect?" and "Photography Up to Date," giving about five minutes to each topic. The point of the last head was that a liberal policy towards the customer is generosity to oneself.

Mr. Rockwood illustrated his remarks by diagram. He said:

"Ladies and Gentlemen: I was asked by so many people to talk to you about so many different subjects, that I said I would discuss 'Odds and Ends.' Charlie Hetherington wanted me to talk about lenses, another gentleman wanted the latest thing in photography; others, information about the slant light; more, about how to treat the customer. Perhaps that is the most important thing I have to say to you this morning. You know it has been the custom of photographers to fire a plate at their customers and then fire them out of the front door. I have never believed that was a good plan. There is a good deal more of art knowledge on the part of the public than we have given it credit for. I say 'we,' for I have tried to avoid that rock myself. There never was a greater mistake made on earth. I never refuse to take an extra negative when anyone asks me for it. However, if a lady has come in in one dress and wants to be taken in another waist, I am very sure to pose her so different from what she was, that she will be obliged to take both in order to get what she wants. I adopted the plan a good many years ago of considering that perhaps the public knew what they did want, and the question of how to get my money never was an obscure one to me.

"I felt that if I treated the public generously, they would treat me so. By this method I have steadily advanced my prices from an average of a little less than $6 per dozen to $12.35.

"Concerning the use of lenses: In this matter the subject was suggested by a mere thought I had, standing in front of a picture 10 x 12 in the exhibition here which showed very plainly to me that the picture had been made with a 3-B Dallmeyer, if it would cover it. The point is, that with a short-focus lens, intended for the cabinet size at the most, they had made this 10 x 12. We speak of it as 'straining' the lens. It does not strain the lens, but it does strain the subject. The rule is never to use a small lens for a large head, but you can use to advantage a large lens for a small head."

Question from member of audience: "Can't you also go to the other extreme, using a large lens for small work?"

By Mr. Rockwood: "I never met that difficulty."

Here followed a series of questions from the audience and answers by Mr. Rockwood, who closed this subject by showing how to double the capacity of a lens by the use of one lens of a combination which doubled the capacity of the lens and the size of the image, notable examples of which were some life-sized heads made with the front lens alone of a 3-A Dallmeyer.

"I have been asked by a great many to say a word about the 'Single Slant Light'; that is treated exactly as if it was some new idea. It is not. We all use practically a single slant light, as I will demonstrate to you. I used one twenty-five or thirty years ago.

"There (pointing to a sketch on the blackboard) is a general condition of our modern skylight. When you go under the skylight you pull the top curtain down half way and then raise the side shades. What have you? Practically a single slant, only it is obstructed by this confounded beam, which almost every one is compelled to have to support the upper part of the skylight. That is the effect and capacity of the single slant what you are trying to get all the time, but you can't do it on account of this confounded beam in the corner, which is in almost every skylight.

"The latest thing in photography is bas-relief photography in its very best sense, the creation of relief pictures by photography alone. Some ten or fifteen years ago I had the idea that I could do it. I tried it, and succeeded; but I have been so busy trying to get my bread and butter that I did not give up any time in that direction. Mr. Baines, of Stamford, has perfected the process. (Holds up a case.) In this case is a dollar, simply to show the relief on our national coin, and here a plaster cast of a bas-relief portrait made entirely by photography. It will be interesting to you to know that it is being done now commercially. All sorts of decoration can be done from designs in black and white in the flat.

"Anything that you can draw in black and white we will be able to reproduce in relief. Nothing can be made so delicate but that the photographic process will copy. Medals, medallions and things of that kind will all be done by photography.

"At the next Convention, if I am alive, I want to bring you some fine specimens of it, and, if possible, make for the Convention the official emblem of photography, and I shall strive to do that. Good morning, ladies and gentlemen."

By the President: "Mr. Pirie MacDonald of Albany is to talk to us for a little."

Here the following telegrams were read by the Secretary:

"Nashville, Tenn., July 13, 1897.

"C. M. Hayes, President, Greenhurst:

"Success to the Red Letter Convention. Sorry I cannot be with you. Come and see our Centennial Exhibition. W. G. Thuss."

"Boston, Mass., July 13, 1897.

"C. M. Hayes, *President Photographers' Association of America*, Celeron:

"The Photographers' Club of New England extends its best wishes for a successful convention. Remember the Boston exhibition, the 28th and 29th.

"Geo. H. Hastings."

By the President: "There was a committee appointed last year for looking into the matter of getting the old photographer, Jex Bardwell, a home; I believe Mr. Cramer, of St. Louis, was the Chairman. Mr. Cramer."

By Mr. Cramer: "This matter was brought up at the last meeting by our friend Wilson, of the *Philadelphia Journal*, whom I am sorry to see absent at this meeting. It was for taking care of one of our old friends of photography, who is now in old age and distress and in embarrassing circumstances; he is living in your own city, Mr. President, and I suppose you know more about his circumstances than I do. I know Mr. Bardwell is deserving of our attention, as he has done a good deal for the benefit of the fraternity, probably not known to the younger members, but more so to the older members. Mr. Jex Bardwell was the main party who broke up a patent and relieved us of that burden. For that reason it is worthy of attention.

"I thought it was best to postpone action until this present meeting. We have to consider how it can be done; perhaps we can put him in a home. I don't know what you have in your city. We have one in mine. Sometimes it just depends upon a little turn in your fate whether you are going up or down. I hope we have enough sympathy in our Association to help relieve him in his old age. Mr. President, are you on that Committee?"

By President Hayes: "No."

By Mr. Cramer: "I would ask that you and Mr. Allen and Mr. Price would assist me on that Committee."

"By President Hayes: "We will have that meeting of the Committee and then report here to-morrow. Mr. Allen is probably as well acquainted with Mr. Bardwell and his circumstances, better, perhaps, than anybody else in the hall, and I think we will hear from Mr. Allen in regard to it."

By Mr. Allen: "I am no word painter or artist, but if I were I would present in very vivid colors the theme of Jex Bardwell. He is one of the kindliest old men—one of the most generous men in the fraternity. He is a man who is poor and in need of the necessaries of life. Last winter I had occasion to call on him. I found he was on his last scuttle of coal.

"He has a barn, which was kindly furnished with a skylight by a friend of his, at which he makes his headquarters; but he is an old man now and scarcely able to do any business, and, added to this, he has no business capacity. He picks up little odd jobs wherever he can get them. He has an invalid wife—invalid in body and mind, a perfect baby—and he has to do his own work and hers. When the bromide patent was being inflicted upon the community, a point was wanted that no one could furnish. He had preserved all the photographic papers complete that had been printed, and it was through him the information was gained which showed the invalidity of the patent.

"You can all see what the result would have been, you can picture as well as I what the condition would have been. We have all benefited by it.

"As to Mr. Bardwell, he is extremely poor, and it is distasteful to him to be an object of charity; but it is a duty upon us, it seems to me, to take care of him, to buy him a position in some of these charitable homes. It will not be for many years, because he is not in such condition as to long need it, I think. The suggestion I will read is from Senator T. W. Palmer:

"'Committee: It is understood that it is in contemplation to raise a fund by which the last years of Mr. Jex Bardwell's life may be rendered free from care. I hope this may be done. Mr. Bardwell is old, in high esteem, not only as a photographer, but as a gentleman of cultivation and generosity. I think it would be but a graceful and proper thing that some acknowledgment of his life and labors should be made.'

"Had he been a man of business capacities, he could have feathered his nest by selling his services.

"I have no particular plan to propose, but a dollar from each member of the Association would place him in a home where he would be beyond want. Isn't it the duty of us all to make some contribution, instead of thinking somebody else will do it?"

Here it was moved and carried that President Hayes and W. H. Allen should be added to this Committee.

By the President: "We will now hear from Mr. MacDonald. His topic, I think, will undoubtedly be a good one to restore hair to bald heads."

ADDRESS OF MR. PIRIE MACDONALD, OF ALBANY, N. Y.

"More or less buncoing is something we can always expect from some people; this is more or less bunco. Last Friday, I got what purported to be an Official Programme, and in it I noticed my name pitifully mangled announcing that I was going to talk to you. I had heard absolutely nothing of it before, and I assumed the position of the proprietor who had sent his man on an errand and he had been gone all day, and when he came back, he said: 'Mike, where have you been?' And the man said: 'Boss, suppose you came to the fork of three roads, which would you take?' He said: 'I don't know.' I was a good deal in that position. I don't know what to talk to you about. There is one thing forces itself upon us now particularly. Now, I think the burning question of this hour is whether it is or isn't feasible to take into our hands as an Association the School of Photography. This afternoon we are going to be entertained by some able people, people who work rather than talk—my line of business is talking. On Friday we will be entertained with something that we all of us have wanted to know. There was more or less interest taken in yesterday afternoon's performance, and unquestionably, much more will be taken in the other two. We feel (I wish somebody else was saying this), we feel that there is a decided benefit in it.

"We feel, too, that it is wrong to insist upon a continuance of it in the way that it has been carried on. A year ago this Convention came here in a comparatively pitiful condition financially. We have to-day the support of stock dealers in the renting of spaces to a very much larger extent than we have ever had it, and it is due to the fact that they know we do assemble a thousand people, and that space is worth something.

"At school, they used to say that "them as has got, gits," and it is a good deal the same case here. After you start growing, you can't help yourself from changing, you have got to grow. In my opinion, the greatest attraction we have had has been the School of Photography. A year ago, while we were in an almost chaotic condition, so far as money was concerned, The American Aristotype Company realized that it would be of interest to the people to institute such a school, and with their characteristic generosity, they spent their money for it for you and for I, and they did the thing thoroughly and well. I do not question but that, if the Association doesn't take hold of it, they will do it as well again, but it lies between ourselves.

"We can not accept a thing too often for the sake of our own dignity. We can not ride free horses to death. There is now going through the minds of some people here that question whether it would be riding free horses to death; that is not their business, it is ours. The scheme of taking hold of the school itself hinges on the one question, where are we going to be next year? Now I, personally, do not stand committed to any location. I am an absolutely free lance on that question at this meeting. My opinion is that that question should be settled at a time previous to the place that it occupies in the order of business for the reason that every piece of business that we accomplish during this entire Convention should be done with reference to the place of our location. We are going on blindly, not knowing where we are going next year. Gentlemen, I wish that some one of you would present a resolution to the effect that the location be decided on at the next session."

By the President: "It will be a matter of suspension of rules, and it can be done by resolution presented one meeting prior to the time the question comes up."

Mr. King offered the resolution that the matter be settled at the next regular meeting, to occur to-morrow, at 10.30. The resolution was seconded and passed.

By Mr. MacDonald: "As yet I am talking blindly, I do not know what you are going to do, but I am in favor of coming here on account of the thousand and one advantages we have here over any other place.

"The experience of the officers has been based on conditions that exist here, and their efforts of this year, their mistakes, their successes, can be all used to the advantage of the Association if you hold it here, and you lose all of that experience, which, believe me, is very valuable, if you do not come here. Now, supposing we were to come here, would it not be a good idea to take hold of this School of Photography and relieve people whom we know to be too generous of a burden which we know does not belong on their shoulders at this stage of the game. This stage is a place where we have money enough to handle that thing ourselves. The school should be maintained by the photographers for the education, not of the people who have most education, not high-school education, but intermediate and primary, to fit the masses, the people who want to know more, and I wish that you would think this matter over. I wish that you would come, 'loaded for bear,' to-morrow morning with thoughts on this subject, and be able to express yourself, because you know what you have thought out, and let's handle this thing ourselves to-morrow morning. Remember I stand in the position of an individual, recommending merely what I think is best. You may differ with me, and if you do, you will have to fight me, but I really do think that we ought to take care of that thing. This notion of the school came up while I was standing out in front a few moments ago. Before that, it had occurred to me perhaps it would be well to talk on this subject. It is the only thing I could dig up, which, I thought, might interest you previous to the thought of the school.

"Almost all of us, when we start in business for ourselves, do almost anything, from the cleaning of floors to the delivering of pictures, and we feel that the day of emancipation is the day when we have business enough to engage a printer.

"This life is made up of waiting spells, waiting for some step that we wish to take or for the fruition of some seed that we have planted, and we feel that when the printer comes in the house everything will be complete; when we get the printer—we want a retoucher then, because we are working too hard, and then, some of you go on as I have done, you get a colored porter, you get a lady's maid, then you get a man to hold up your hands, all those things. I believe, truly, that the more hired help a man has around him, the more thoroughly a slave that man is. I am not now speaking with any kind of prejudice against our hired help, of which we all were a part at one time or other, but I do believe very firmly that there would be infinitely more happiness to us if we were able to get along with perhaps one or two capable assistants and make better work and less of it, the same revenue to the house, the same profit to the house through charging larger prices for better work, but you want to remember, that if you want this better work to come out of the one or two men, they have got to be better men.

"How often (and I have got a printer that I like pretty well) we look over a negative and then we look over the prints and know that the negative has not been done justice to.

"I claim, in the majority of cases, our printers are, comparatively speaking, incompetent, for two or three reasons.

"We have lots in the printing business, as we have in all other professions, but they are not sufficiently encouraged with money. We drive them out of printing into making negatives because we pay the men (if we don't, others do) more money for making negatives than for printing, and I feel rather this way in regard to a printer: If that man is to carry out, to supplement my work, that man must know as much about his work as I know about mine, and the only way that you can hold a man who knows as much in his line as you do in yours is to pay him as much money for doing his printing as you would pay an operator.

"Do you realize that our entire product, your negative is not your product, as related to the finished picture (it is only part and ought to be let in duty free), the print is the thing you give your clients for their money, and, is it square to sell, to let prints go out of the house, the permanency of which, we will say, you question; the quality of which, we will say, you question; the value of them, as reproductions, you question, and you question it in the majority of cases with a great deal of justice. Is it right that we should do our work and then trust someone who is not thoroughly competent to making that which people are paying for? It is not honest. We must have more capable men in our printing room. It is a mere thought, but it may lead some of you into the right direction.

"The thought naturally hitches up with another one:

"If you are able to personally direct every person in your house, you get a spirit, an *esprit de corps* infused into your assistants.

"They feel as though they were a part of the establishment. Now, how many establishments there are where there is not that feeling, where the printer, the retoucher, the porter, everybody, want your money. If you handle too large an establishment, you can't help yourself. They are bound to be away from you; but if you handle a smaller one and insist upon their living into your ideals, you are making for yourself a little community, you are making for yourself strength, and, through the fact that your product is better, you are making yourself happier."

By the President: "To-morrow morning at 10.30, Mr. Griffith will give another lecture on art here.

"All the men I requested to act as Judges please report at the office at 10 o'clock."

Meeting adjourned to 10.30, July 15, 1897.

THURSDAY, JULY 15TH.

The President announced that unless more important business should be presented to the Convention, the matter of selection of the next meeting place of the Association would be first considered.

Secretary Bowersox then read the following letter:

"BUFFALO, N. Y., July 14, 1897.

"PRESIDENT HAYES, *Photographers' Association of America*,
"Celeron-on-Chautauqua Lake, near Jamestown, N. Y.

"DEAR SIR,—I trust it may not be too late to call the attention of your Association, during its Eighteenth Annual Convention, to the fact that two years hence the Pan-American Exposition of 1899 will be in progress at this season of the year. We look to the photographers of the New World to assist us in showing the progress that has been made in their branch of art during the present century, and I hope you will find an opportunity to bring this matter to the attention of your associates.

"I inclose newspaper clippings which will give you some idea of the purposes and scope of the Exposition for which we are preparing. It will be, beyond question, the most remarkable, if not the largest, exposition of the century.

"Yours truly,
R. C. HILL, *Secretary*."

The President then appointed ex-President Bellsmith, Mr. Pirie MacDonald and Mr. John Schneider a committee to consider this matter and to report to-morrow morning.

By President Hayes: "We will now proceed to the selection of the meeting place for next year."

By Secretary Johnson, of Omaha: "In behalf of the State of Nebraska and the Trans-Mississippi Convention, which is to be held from June to November, next year, I have the pleasure and honor of presenting to the Committee an invitation to meet there on that occasion. This is a very beautiful spot here at Celeron, and, from the sentiments expressed, the chances are that you will meet here again. Nevertheless, I wish to present this invitation, and would like to have the Secretary read the same."

By the President : "This is a pretty long communication. Is there any particular part you want read?"

By Mr. Johnson : "You might read the first one, and state what the others are."

Mr. Bowersox then read an invitation from the Secretary of the Commercial Club, of Omaha, to select the city of Omaha as the place for holding the next annual meeting of the Photographers' Association of America.

Similar invitations were submitted from Silas A. Holcomb, Governor, Executive Chamber, Lincoln, Neb., and John A. Wakefield, Secretary, Trans-Mississippi and International Exposition, Omaha, Neb.

Motion made that when the Convention of 1897 adjourn, it adjourn to meet at its present meeting place, Celeron, for the year 1898. (Loud cheering.)

By Mr. Allen : "If Professor Griffith is in the house, I would like to hear him say a word."

Cries of "Griffith, Griffith," and applause.

Address of Mr. Griffith.

"Mr. President and Gentlemen and Ladies of the Convention : You must remember that I am to talk later, and you will get quite enough of me. I have this to say, however, that I was requested to say a word this morning for placing the Convention next year—to say a word for Chautauqua. In reference to the invitation you have received from the people of Omaha, I know that you will receive a most hearty and cordial welcome—will receive from the State of Omaha a great deal that will be of interest. The great Trans-Mississippi and International Exposition will be held there next summer, second only to the World's Fair. You will have an opportunity, not only to see the products of this country, but of other countries, for it is international. I shall be very glad to go there, but I know that it means earnest, hard work—but I know that you will be where, if you have a good deal to do, it will be good and warm. I wish them success, and know they will have it. Most people that photograph are in a way where they cannot take many outings. This seems to be an ideal spot. While I wish I may come myself, I wish it may be a pleasant place where the others may come.

"Last night, as a capping climax (referring to the illuminated fleet), it seemed to me that it spoke volumes when you saw the thousands of lights, which seemed to be holes in the night, all sparkling along the lake shores.

"And the hearty welcome extended to you, even when you have been here twice, you will receive a welcome that is thrice hearty. I believe that to be here among the great things Nature has laid out will do more good for the photographers assembled, will do more good than any other spot where you could spend a week, then let those who can afford it go to Omaha."

Moved and seconded that the nomination be closed. Carried. Moved and seconded to hold next annual meeting at Celeron, in 1898. Carried.

By the President : "It is necessary to appoint a nominating committee for the officers next year. I appoint Mr. Frank Place, Mr. John Schneider, ex-President Bellsmith, George G. Rockwood, and Mr. Holden. Is there any further business before beginning the lecture?"

By Mr. Todd : "Mr. President, I would like to ask the Convention to take up the Jex Bardwell fund. This fund has been before the notice of the Convention for a good while.

"They have talked so much, they put me in mind of an old Scotch family I knew. When I happened to be in the house, they would talk, talk, talk about doing something and never do anything, and at last the old man snarled out : 'Why don't you do something?' I want to ask the photographers here the same question, why don't you do something?

"Most of the meetings I go to, there is either a prayer made or a collection taken up. I won't blame you photographers for making prayers, but you are all capable of helping in a collection. I would move that right now a collection be taken up for Jex Bardwell, each man take his hat and pass it along the row where he sits. You will be not paying your debts, but simply your interest, because if he had even the interest on what he has done for you, he would be well off ; so begin paying your interest."

Cries of "Go down in your pockets" and "Put in a V."

By the President: "Mr. Hetherington, please take up the collection."

By Mr. Rockwood: "I was one of the victims of the bromide patent, when this thing was being tested before the courts, and before it was disposed of, I was fleeced to the tune of $1,500, and I considered I was let off pretty easy. I was told if I didn't do that I would have to pay $3,000 or $4,000. If Mr. Bardwell had not furnished that evidence all of you would be paying a royalty on that bromide patent."

By the President: "I think you would all like to hear a few words from the first President of this Association, Mr. J. F. Rider." (Applause.)

By Mr. Rider: "Thank you, I can talk now on the subject-matter that is with you present, the best; that is, with that hat for Jex Bardwell, the man that saved us hundreds and hundreds of dollars—the man that has been overlooked, Mr. Jex Bardwell."

"To do what we can for that man this morning is doing ourselves all honor."

By President Hayes: "I think we will have Mr. Griffith proceed with his lecture, as you can all hear him now, and we have only a limited time before the boat leaves."

By Mr. Allen: "I would like to say for the enlightenment of the Convention, we have a subscription paper here from $100 from Mr. Cramer down, and we have them quite numerously signed."

By President Hayes: "Mr. Griffith, if you will proceed."

Mr. Griffith's Address.

"The world moves in cycles. It has been the history of nations from the beginning. We start low and make onward progress in civilization and improvement, slipping backward and then starting anew, until we reach the highest point of attainment of civilization. Then we begin to go down and the new nation takes up the progress. It has been the history of the Venetians, the Assyrians, the Old Greeks and the Romans.

"Each empire came in its time, passed in a circle and went down in a sunset. The question comes up; isn't this the apex, isn't this the top; or are we nearing the top and just getting under the sun. Pirie MacDonald, quoting Emerson yesterday, said a picture was the materialization of a thought. He might have gone further, and said that it was the breath of a thought, the realization of an idea. It is the materialization of the poetic dreams that flash through the brains of men which we call genius. Sometimes these are not understood, not grasped. They simply do not tell the story, and the result is disappointment.

"As we pass from the earth, it is Nature to strive in some way to leave behind some memento of ourselves, or of some fancied deeds. The Greek girl of old who, standing in the sunlight and talking to her lover, traced with the stylus on the white wall his profile, was the beginning of photography.

"It would keep to her memory some semblance of the man whom she looked upon as her ideal.

"Bobby Burns, the man who could plow along the hill-side and dream those marvels of poetic fancy that thrill, not only Scotch people, but all the world, said, 'O wad some power the giftie gi'e us, to see oursel's as ithers see us.' The vain man says, 'Make me beautiful;' the dignified man will say to you, 'Make me grand-looking.' Queen Elizabeth said to the Scotch envoys, 'They tell me your Scottish queen is beautiful; is she more beautiful than I?' What a homely contrast, for Elizabeth was never noted for her beauty. Cleopatra, that serpent of the wondrous river that winds around through its thousands of miles, sent her messengers to Rome to bring her back word what sort of woman was Octavia. She wanted to know the link that made up the chain that called Mark Anthony from Egypt to Rome, but the wondrous woman had a power within herself that she did not realize, and, to me, there is no more marvelous picture in all history than this same Cleopatra.

"They tell you she was a bad woman. I grant it, and yet through all her badness there was the most magnificent loyalty to her country. She found that she was unable to cope with the magnificence and genius and strategy of the mind. She said, 'I have yet one woman's weapon. I will conquer the conqueror and save my country.' Her wondrous beauty, for once, she realized, and drifted down that old Nile, which, by the way, people tell you is green—I was in a studio some time ago and was shown some Nile green draperies.—The Nile is not green; it is blood red. For months the people wait for its coming from the mountains. They know a certain height means plenty; another depth, flood and destruction, and it is the scum and dregs when the river is low that are green. The river itself is blood red. This woman, who for once realized her power, floated down that river under purple silken curtains, and when she reached the conqueror, she did not ask him to come to her because she knew he would think there was a trap laid, but she was taken to him, and then in all her loveliness brought before him. He was won. Her country was saved, and the woman was queen, simply because she had conquered the conqueror, and he realized that if he wished to hold his own, he must return, as she had fled to the tomb of her fathers; and then comes that marvelous picture, Mark Anthony back, walking the streets calling for his queen; and they said to him, 'Go to the tomb,' and there her attendants threw down a rope and they pulled her up to find that she was dying. Not the presentment of the figure, of a face or a form, but the facts creeping out.

"Old Hickory said: 'Make me like myself.' He knew no rule of beauty, and he wished to be presented to the world himself, and yet there was an inside character which he never gave to the world. The first Napoleon said: 'Make me look like the Cæsars.' There is the vanity that creeps out of every man. Make me look like some one whom I have formed as my ideal. The portrait painter who studies the man makes the man like he is, with the soul back of him. I do not believe in phrenology. I do not believe you can tell any more how much is in a man's head by feeling of the bumps, than you can tell how much money is in a safe by feeling of the knobs on the door. But I do believe in physiognomy, and if one of those manufacturers comes to you, you say to yourself, 'I will trust him, he is honest.' There is an honesty of purpose back of his face which you appreciate. I told Charlie Hetherington once that I was going to put in an application for a magnet.

"Twenty years ago I stood in the office, a boy, at the World's Fair, and saw Dom Pedro come in and bring with him young Bell, and introduce him to Colonel Gershon, and string a wire across the exposition building on Sunday; and that was your first telephone; that was twenty years ago.

"Well, this Frenchman is working on two magnets, one that he keeps and I am going to have one so that I can keep up with Charlie Hetherington. I don't think I can keep up with him, but I will know where he is. I will reach in my pocket and take out a magnet and it will ring a bell in Charlie Hetherington's pocket in Chicago.

"The camera is placing on the scene now moving figures.

"Is it not approaching the point where it will do away with manual labor in the matter of producing pictures of the man of to-day and the woman? It seems to me it is one of the wisest things to take hold of the tools you have and get from them the greatest results possible. You can do no work with half-way tools. It requires the best of everything to take hold of work that will educate the people. The thought that five years ago, ten years ago, you had to procure your own chemicals, taking your old silver baths out into the sun and fixing them to be able to do something. The old photographers will remember that—how you were blundering along in the dark and trying to get the best out of the materials you had. Men who make that a study are changing all that. Now you simply have to go out and buy the materials.

"I said the other day that I was lazy. I stick to it, and I admire the Yankee who sits on the fence a whole day and thinks out how he can avoid sawing wood fifteen minutes.

"I think the man who sits down and thinks out the way he can accomplish his work is getting along better than the one who simply plods, works, and works, and works. They are doing no thinking, simply working, drudging. It is the man that goes out on the street that makes the illustrator. He sees how the woman walks up to the door, how she leaves her card with the servant, catches the swish of her dress. A young man I knew, went into an office and asked for a position. They said to him: 'Go out to the elevated and bring back the types of people that travel.'

"He came back with sketches; one, in particular, of a fashionably dressed gentleman talking to two ladies. The editor looked at it and said: 'That is a pretty idea, but the man's collar is out of date; it is last month's collar; the necktie is out of fashion.' This shows the faculty of keeping things up to date. If you ever go to Paris, I beg you to go to Grevin Museum. There the best artists from the City of Paris are employed, and the figures are dressed every day.

"There is not a speck of dust on the man's shoes. The woman's dress falls in folds that were done to-day. The figures are so natural that the only way you can tell them from the living people about you is to watch and see whether they move.

"I think I never enjoyed myself better than I did there, simply by standing still and getting the comments.

"There you find the President of the French Republic dressed for the reception, even to the last button on his coat. It is simply the height of artistic excellence.

"I went to three or four different men to get a catalogue before I found I was talking to some one who couldn't hear. A man paints a picture, as the story goes; puts it before the public. It is a shoemaker with a last on his knee.

"A shoemaker comes in and looks at it and says: 'Well, a man never holds his last like that.' The artist hears it, and he recognizes, as any honest man ought, that it is true. He goes to the shoemaker and studies just how he holds the last, and then he puts his picture on exhibition. Then the shoemaker is pleased; but he says, 'I don't think the shadow on that man's face is correct.' He has gone below his depth. Think of that when any one criticises your work, and think whether he knows what he is talking about.

"Henry Ward Beecher told once of a woman whose sweet face and voice captured his audience. She sang in the choir without any effort, and it drew crowds.

They came to listen to that sweet voice. By and by he noticed that she drifted out of the choir. He made inquiries, after several months, and found that she had married and gone to a little inland village.

"A couple of years afterward he looked up suddenly and saw that face—refined, made better, passed through the fire of human endurance and become idealized, draped in black. By and by she began to sing, and the people all turned their heads. Her notes were not so high, nor did she stoop so low again in her tones as in the years ago, but there was a human sympathy. She had been singing lullabies to her child, and now the whole crowd turned and watched that one magnificent, womanly face. It was not music ; it was the music that comes from the heart appealing in sympathy to the people. She had learned to sing through singing these lullabies to her child.

"Take the old, old story of Michael Angelo, who found the boy in the streets, and found his face so wonderfully beautiful that he said, 'I will make of him an angel,' and he took him to his studio. To-day his face is repeated again and again in Michael Angelo's studios. Years passed by. One day he walked the streets of Rome looking for a face and figure that would represent the Angel Gabriel in his Last Judgment.

"By and by he found a face so full of revenge, so black and evil, he said to him : 'Come to my room.' The man came. He painted him, representing his Satanic Majesty, and he began to get the story of his life, and he found it was the angel.

"A man's life makes his face. That gives to Charlie Hetherington that broad expansiveness of face that shows his whole-souled nature and makes him lovable. (Here Mr. Hetherington rose and advanced a crisp $5 bill. Laughter.) Give to each man, woman and child his character. Try to find the way they walk, the way they talk, and then you have begun to catch something of the character. This morning I made a walk over the hills and saw Nature. We say Nature reveals herself to some people—to the poet, to the artist. She reveals herself to any one who will go and seek her company.

"Great banks of clouds came up over the hills. The changing waters of the lake were like some magnificent emerald, and away, far up on the hill, I found a vacant house tumbling down. I went up and around it. The open fireplace, generous in its expansiveness, began to tell me its marvelous story of how the family, two human hearts united in one, had come here and built their home ; how they had reared their family. I dreamed again and again over the different fates and lives of its people, and wondered where in the wide ocean of human life they were to-day. Here was this old house, high and dry, like some old rock thrown up by the ocean tide. At the doorway I stooped to pluck one single blossom, recalling all the memories of this old house. Silently it told its story, as every picture should. You could weave around it a volume, and I wish that I might go there again when the day was done ; when night, seeming to bid farewell to all the world, threw across the western sky great banners of gold and scarlet, and then, as if jealous of this gem of Nature's setting, night gathered together over it its sable folds and pinned them with a star. I thank you."

Secretary Bowersox next reported from this morning's collection for the Bardwell fund, $94.08 ; yesterday, cash on subscription, $52 ; yesterday, by subscription, $122 ; total, $268.08.

By President Hayes : "To-morrow morning, at half-past ten, we will hear from Mr. George Bellsmith and Mr. Perry."

By Mr. Cramer : "Mr. President, we have with us a guest, Sr. Fernando Ferrari Perez, from the City of Mexico, that I wish to introduce to the audience, a professor of the science of photography. He was at the World's Fair, one of the judges of photography. He is now a member of the Spanish Delegation that travels for the United States in order to visit the centers of industry, and on my special invitation has come to spend a day or two with us."

By Charlie Hetherington : "We come here for education, and I like the idea of exchanging thoughts. If you have anything up your sleeve give it away, and you will feel all the better for it. When we get through with cheap prices, we will have better times."

By lady in audience : "You will have to do something with the department stores "

Mr. Hetherington : "We will do the best with what we have. I find that the better class of workmen to-day have no trouble in selling their goods. It is the cheaper man that is always hard up. Elevate yourself and you won't have any trouble."

Voice from audience : "Suppose we were all elevated to that position ?"

Mr. Hetherington : "You couldn't elevate all the photographers to that point—couldn't. I am only talking to those photographers who can use what brains they have."

By Mr. Bellsmith : "Charles Stevens requested me to announce that boats will leave Celeron at 1 o'clock, and return to Greenhurst and Lakewood at 5.30 and 6 promptly."

Adjourned to 10.30, July 16, 1897.

FRIDAY, JULY 16, 1897.

ADDRESS OF EX-PRESIDENT BELLSMITH.

"Mr. President, Ladies and Gentlemen: When our President requested me to speak on the needs of the Association, I hesitated about accepting the assignment, for the reason that the Association seems to be pretty well satisfied with the way things are running and might not accept any suggestion for a change in good part. I am well aware that the great attraction and the greatest benefit derived from these, our annual conventions, is our competitive exhibition, and certainly the benefit to be derived from the careful study of the cream of the skill, thought and intelligence of a whole year is well worthy of our assembling. But when we have to drive our members over to this meeting by closing this beautiful exhibit, I begin to feel that, as an Association, something is wrong. We lack the conference feeling. We want to get together more and see if we cannot make these, our sessions, of more real benefit and greater interest. We want the members on this floor to take an active interest, to suggest topics of discussion, to bring here their difficulties and local business troubles and oppression. There is one suggestion I would like to make and that is that there be a division in this body, as they have in the great commercial bodies of our cities—say the reds and the blues. In the matter of election, let there be two tickets in the field. You will find that this will bring in a friendly thrift.

"If you have any business troubles, any grievances against anyone in particular, if you have anything that clearly could be legislated or helped in any way by the Convention here, it should be brought to our notice. In the matter of elections here, the President makes a nominating committee, and, as a rule, it goes. There is not the contest that I would like to see. I notice in all large commercial bodies that there is a line drawn somewhere. I think that we could draw the line here on the New Photography and the Old Photography.

"I think if we could have two nominating committees, in that way, you would get the very best men in the Association to be your executives. I would like to see more suggestions come from the body, not to come entirely from the chair. Many times I have had people complain to me of things they objected to. One party spoke that there ought to be something done to stop this matter of department stores, where they are paralyzing the legitimate business of the photographer, putting it down to such a low figure. They make pictures for less than they cost them. Applause.

"I think we could some way put a stop to it, or anyway help those that suffer from it. Last year I mentioned, I think, in my Sunday address, the matter of Sunday closing.

"I would like to see this done, and I tell you that we should, as we are rising to a respectable business profession.

"It is degrading to have to say that we have to work on Sunday in order to make a living, and I think that should be brought up.

"These are just a few cursory remarks. I didn't prepare anything formal, but I just want to leave that feeling that I want the body to take more interest in the matter, and, if there is anything you want, bring it before the Association, and it will be given their attention."

By the President: "There are a few communications that the Secretary will read.

Mr. Bowersox then read the following telegrams:

"LOS ANGELES, Cal., July 15, 1897.

"To C. M. HAYES, *President Association.*

"Extend greetings to the boys. Will not miss next Convention."

GEO. STECKEL.

ST. LOUIS, Mo., July 15, 1897.

"C. M. HAYES, *President P. A. of A. Convention.*
"Chautauqua Lake, Celeron, N. Y.

"I regret my inability to be with you. Success to the Red Letter Convention.

"J. ED. RÖSCH."

By President Hayes: "Now, we will proceed with the election of officers. The first thing is the report of the Nominating Committee. The Secretary will please read."

By Secretary Bowersox: "The Committee on Nominations report as follows:

"For President, J. Will. Kellmer, Hazelton, Pa.; for First Vice-President, F. W. Guerin, St. Louis, Mo.; for Second Vice-President, Geo. H. Van Norman, of Springfield, Mass.; for Secretary, Geo. Sperry, Toledo, O.; Treasurer, Geo. W. Varney, Chicago, Ill.—J. S. Schneider, Frank Place, Alfred Holden, R. P. Bellsmith, Geo. G. Rockwood, *Committee.*

By the President: "I will appoint as tellers Messrs. Place, Bellsmith and Schneider."

By Mr. MacDonald: "Mr. President, acting on suggestion of the very able Nominating Committee that we have, I should like to place in nomination a gentleman who, a couple of years ago was to us a stranger—a couple of years ago to us was a boy—but who to us to-day is no longer a boy, a man who has had experience, a man that has been a part of an executive body that has carried and maintained the two most successful conventions we ever have had. I wish, gentlemen, to place in nomination a party from a little spot way down in the left-hand corner, my friend, Mr. Kellmer."

This motion was seconded amid applause.

By President: "Any further nominations for President?"

Moved and carried that the nominations for President be closed.

By Mr. MacDonald: "In face of the existing fact that there are no other nominations, I move you, sir, that the Secretary be instructed to cast one ballot for Mr. Kellmer."

Seconded and carried.

By President Hayes: "We will proceed to the election of the First Vice-President."

Cries of "Speech, Speech! from Kellmer," and the call, "Chautauqua, Pennsylvania, Siss, Boom, Rah!"

MR. KELLMER'S RESPONSE.

"Ladies and Gentlemen: I thank you most heartily for the great honor you have bestowed upon me, and I shall endeavor to do the very best possible, and I want your support and I want suggestions from the members of this Association what they would like to have or what they think would be for the good of this Association. I have heard several comments from the members from Canada about the duty question that I think we should look into. (Cries of 'Hear, Hear!') Anything of that kind, if you will write to me, I will give serious attention and try and place the matter before the next Executive Board and see what we can do for you." (Applause.)

The following gentlemen were then elected: First Vice-President, Mr. F. Guerin, of St. Louis; Second Vice-President, Mr. George H. Van Norman, of Springfield, Mass.; Secretary, Mr. George Sperry, of Toledo, O., and Treasurer, Mr. George Varney, of Chicago. Mr. F. R. Barrows, of Ft. Wayne, Ind., was a candidate for Second Vice-President and came within four votes of election.

By President Hayes: "We will now listen to Professor Griffith's criticisms."

By Mr. Todd: "I have a letter from a photographer stating that he is very anxious to secure the position of an operator. If any one wants an operator, kindly come to me and I will furnish him this letter."

By President Hayes: "Mr. Todd has made a careful study of the pictures over in the Annex, and, following Professor Griffith, will give us a little talk on the pictures over there."

Here Mr. Griffith entered and arranged upon the platform a dozen pictures which he had brought over from the Annex.

CRITICISMS OF PROFESSOR GRIFFITH,

Director Detroit Art Museum.

"I would say in beginning that I wish the pictures were all so big that you could see them all over the house, and the only thing I can do is to call your attention to them and then you will have an opportunity to study them over in the Art Hall.

"Criticism is not fault finding, neither is fault finding criticism. If I give you a reason, and you can understand my criticisms they may be of help, if I do not give you a reason, you need not accept them.

"The foolish man never changes his opinion, the wise man does, and often.

"Allow me to tell you a true love story to begin with.

"When I was about eighteen or nineteen years old I fell desperately in love with a very beautiful girl, as most boys do, and I thought that life would not be worth living if I did not in some way become united with her. Well, I went to the old country, and while I was away I received an announcement that she was to be married. A year or two after that I returned, and her sister was about to be married. I, as an old friend of the family, was invited to the wedding. She said to me, in the evening: 'Emma is coming home. I believe you have never met her husband. I would like to have you meet here with the family and greet them.' Well, I was at the house at the appointed time.

"Emma came in. She said: 'I want to introduce you to my husband.' A nurse came behind and carried the baby.

"I looked at her; I looked at him; I looked at the baby, and I thanked God that he got her. You may call that fickleness; perhaps it was, but it was evident that my opinions and mind had changed. In speaking of pictures, I find that the picture I admire to-day, I sometimes fail to see beauties in to-morrow. Pictures are like people, they have an undercurrent to them. Sometimes you will admire a picture that is really of no account, It has simply made an impression, as somebody with a handsome dress makes an impression on you.

"A great picture does not come from accident It is the result of a great thought. It must tell a great story. That is the picture that wears, the picture that pleases you for all time. That is why I said to you yesterday, 'Study the old masters, they have stood the test of hundreds of years; there is nothing better to-day.' Now, why did they stand the test?

"Simply because they were well done, they were well studied.

"I want to speak first of this picture. Now, I have brought not the best, nor even yet the worst. I will speak of this first. Mind you what I say, it is only one man's opinion. I am saying it of my own free will. There is a picture with a beauful conception—the human figure placed in the position of an angel, Night. It is a beautiful thought, badly executed. I say that and I will qualify it. It shows a wonderful amount of genius and thought and care in getting it in shape.

"I am glad to say I met the gentlman yesterday and he showed me the original proof.

"The genius by which he gave it the easy position is to be admired, and I do admire it. The picture is too fussy.

"The scene is too fussy. There is no restfulness in it. No place for the eye to rest. The figure is graceful and easy. He himself made one of the best criticisms. He said: 'Naturally, we get the best light from the sun on the moon, and the moon should be turned the other way.' According to astronomy, that is true. Beside the light should be the light from the moon alone, and fall on the shoulders and the figure here. This should die away. It is a line which sticks out at you; your eye naturally follows it. The man was a dreamer who created it; otherwise he would never have thought of it. It is of the more ethereal things and is pleasing in that sense. The picture is a success because it appeals to you; there is nothing in it that jars. Yesterday I said you had in your grasp the material by which you could make good things—do. I have no doubt the man himself sees these faults. He will understand next time how to get rid of them."

Professor Griffith next took up a picture from the Baker Art exhibit, of the genre class, a lady seated with children about her.

"This picture is a success, but as I said yesterday, I wish somebody would invent a color which you could use for shirt collars and cuffs and aprons which was not white. This is spotted. The scene is full of home life, and appeals to you, but the other is in such beautiful keeping that you dislike these four spots that come out at you.

"Here is another that will illustrate better what I am trying to tell you, 'The Old Smoker'; or rather, there is nothing wanting in the construction and harmony of that picture—nothing wanting to my idea. See the pictures; how they arrange themselves four or five in line. You know he is intently reading. Even the light that falls in the skillet is kept down. It doesn't intrude upon you. But what a damnable background. I am out of patience with a man who will do such a good thing and then do such a bad thing. I say that, as I said, kindly. See those posies up there (pointing to the flowers and vine in the wall paper). There are no posies in that man's life, mind. I don't know whether that man thought or not, but there is the sign 'Bad Bills'; see it up there.

"Do you suppose there is any posy in that man's life?

"There might have been years ago, but there are no flowers in that man's life now. If they were there, he would tear down that vine that grows around the door (vine in wall paper). That is a kindly old face, but I wish I might carry that home and paint out that background. Call all these lines accident, if you want to, but a marvelously good accident, and, as I said, I wish an accident had happened to the background.

"I pick up two little heads, full of childish innocence, as sweet and as pure as a mountain dewdrop. They appeal to you as some pleasant dream of a night past, marvelous in their construction, in their lighting and in their beauty. They are the gems of that entire little group. There are grown people in it, and beautiful ones, but these could have been put on a panel by themselves, and they would have told a story to every man, woman and child. They are the essence of childish innocence and delight from every point of view. There is nothing you wish to take away, and nothing you wish to add to.

"The mechanical labor I do not feel capable to judge, but the picture itself is delightful.

"Among a collection over there of pictures of marvelous excellence I picked out this one. The man understood the centralization of light, the attraction of the eye to one point which you could understand, and the effect of silk and satin and lace.

"You know it is all around the dress, but there is nothing down here on the skirt to confuse you and make it tiresome.

"I don't care how a man secures an effect, if he secures it. You may paint with a hickory broom, but if you make a dress that whisks and whispers when it goes down the aisle, that is a success. This man was a success there, either by training or natural ability; but, oh, dear! I wish he would throw his pencils out of the window. Look at that face.

"Clearly you will see that all the character is rubbed out of it. It is as hard as a bell. I am sorry it won't dent.

"You couldn't touch it. It is simply hard, the result of the pencil. You say people want that kind of a picture.

"A man is simply as good as he makes himself. A young man said to me over there: 'Say, will you look at my pictures?'

"'Why, yes, sir.'

"He said: 'Honestly, it seems to me they are just about as good as the best.' To his inadequate eye he could see nothing better than his own work, but when he educates himself to see that there is more marvelous work than he ever dreamed of, then he will begin to build beyond the bread and butter point. The first thing is to educate self, and then pull up the people with you. We sometimes get into a little town where we see nothing better, but, once in a while, we can slip away where the better things are.

"Among a collection of unusual excellence this is the gem. Simply the concentration of sympathy and of interest. Those children are evidently this woman's grandchildren, and she takes the grandmother's interest in them. My own nieces and nephews are allowed to run the house, and I know that we, as children, were not; simply a grandmother's indulgence, and you see it in this picture, the interest of the little folks, together with the kindly, grandmotherly interest of the old lady. Your interest is centered there, where the children and the grandmother are. There is nothing to call your attention away.

"Here is a pleasing portrait. The piece is happily adapted to the model. Some of the pictures over there—if you will allow me to say it without mentioning names—the models are not adapted to the characters which they represent.

"There is a nun over there. She would look magnificent in a picture hat, and if you smiled at her you would get a smile in return.

"There is no nun in her make-up. She is watching for her ideal of gallant manhood, and when he comes he will know it—simply that sparkling, open look. Nuns are good people, but they are cold. You say nuns are good simply because they go out to people in distress, but the highest type of any woman's character is a home and a mother.

"Here is a nun, made so by suffering, not simply by choice. Her face expresses it. It is full of motherly kindness, love yearning after that which she never hopes to secure. It is a magnificent face, and appeals to you, not by striking contrast of light and shade, but by its wonderful modesty, its wonderful quietness. She is narrow down here When you find broad faces, they are of the earth, earthy; they love a good time. That is why monks are always broad across here. A good, grand, great monk enjoys a good time.

"I would like to say to the gentleman who owns that picture: 'Take off that frame and give it to me.' That white frame catches your eye and pulls you right to it. It is a good thing in its way, because it calls you to the picture and you look at it—by and by.

"Here is a picture. I would like to pat that girl's cheek. There would be a dent there. You have got the harmony. Your face and eyes go directly to her face and eyes, and when you speak to her she will return it with a smile; her whole face will light up. That is a marvelous portrait.

"It is a portrait picture, and a wonderfully pleasing one. It appeals to you, and draws you just where the girl is.

"If they don't have girls and flowers in Heaven I don't want to go, and if they won't let me pull the flowers and hug the girls I don't want to go. I once said that in the presence of a lady who had two very attractive daughters I thought, and she asked me what I was doing on earth, and I told her I was practicing for Heaven.

"Now, I don't know what the judges have done, and I don't care very much. There is the gem portrait of the collection. The model was magnificent, and the man made the most of the model. She is a typical American girl, with all of the snap and the vivacity and the go that American girls only have, a magnificent type of womanhood, and he has reproduced her and made her as she appeared to him. Notice the drapery, how very soft, and yet a little bit higher than the flesh, and the eyes appeal to you; they are speaking eyes. The face is in low tone, but it is a marvelously pleasant face to look at.

"If you passed that girl on the street you would turn around and look at her. I would follow her.

"In contrast, allow me to say: There is a head with marvelous possibilities, but the man didn't get them, if you contrast it with this other portrait. I envy him his model, not the picture; it isn't bad, neither is it good. I believe the people who got that were pleased with it. It is beyond the average portrait, but not with that, and that is why conventions and exhibitions are of value; they put you in connection.

You are placed side by side, and if you look at it fairly and squarely you will see the contrasts.

" This picture is a very pleasing type of American humor. There are several different kinds of wit. The Scotchman's is underneath. You have to look through the surface and think a little before you catch quite the drift of it.

" The Irishman's is on top, it sparkles and you catch it. This is not artistic. It is captivating. It is like Nast's cartoons. His pictures are sought after yet, because they are biting in their sarcasm. They are not art works.

" Neither is this, and I think the man would not claim it was, but it shows marvelous talent for humor.

" One more here shows that intelligence of arrangement in portraiture, but I wish he had got an old man's figure; that is a boy, or at least a middle-aged man. There are none of the wrinkles and the nervous force, that ' lean and slippered pantaloon ' that Shakespeare speaks of.

" It is the sentiment you wish to keep throughout when you go to the picture side.

" You say that in landscape work we are hemmed in to one particular fancy, You are hemmed in by possibilities.

" In the studio you can secure certain effects by your screens. Not so out-doors; you must take it as it is.

" If the mountain won't come to you, go to the mountain. If Nature will not unbend to meet your wishes, unbend to Nature, and catch her when she is unawares, when she has forgotten that you are about. Study well the point, and then go for the picture.

" There is a poem in light and shade, one of Nature's poems. You can see color in that. The man has a dozen pictures or more over there. He said to me this morning, ' What do you think of them ? ' and I said, ' If they were sent to me for exhibition purposes I would pick out those three and turn the others to the wall.'

" This is one of them. I believe he calls this ' Night.' It should be ' The Golden Way.' Marvelous thought or accident, whichever you will, placed that old, self-complacent sailor, who probably fifty times a year sees such scenes as that, and yet he is spellbound. With his hand on the boat he looks out, and, I venture to say, that in his mind's eye he sees the angels ascending and descending, as Jacob did.

" Nature is the most brilliant of all creations, but she is selfish. Your sunset, with all its glorious colors, lasts but a few moments, because you would be awfully tired of it if it lasted all day. Last night the lake was all glowing with pink and orange, and blue, and purple, and scarlet, but they only lingered a moment. It was the passing of that which was so marvelously beautiful you could not describe it.

(Returning to the picture in his hand.) " You could stay before that picture and write a poem. A man could dream out a novel and need no more setting than that for his scene. It simply is a glorious story in black and white, that you need only to half close your eyes and see the color that creeps all through. (Applause.)

" Now I have brought one or two others here. Here is a picture by a gentleman who, I believe, is a friend of mine, and he has got too much sense to feel unkindly at what I am going to say about it. He wanted to represent Samuel, and he found the model, a delightful little Samuel, full of that emotion which we expect to see in a character of that kind, but your eye goes from the face clear out to the edge of the picture; it is distracted.

" Last year in the Salon in Paris were two little children, not a great picture, but two little children sitting on a bank. They had taken dandelions and thrown them about their feet, where they lay like a golden halo. You could sit down and cry before that picture, because it called to mind some child that you knew. There was constantly a crowd about it. It appealed to the people. There was sympathy in it.

" Great pictures are the result of great thought, not haphazard productions. They are the product of the artist who finds his model and dresses him, and redresses him, again and again, and then like Washington Allston, when the picture is all done, writes to a friend : ' I have painted it all over white and begin again.' That means success. It is the sticking to it. Chartrain receives $5,000 for a picture. This picture I have had the opportunity to show to you through the kindness of Mr. Sevier. That man's character is full of color.

" Mr. Sevier is here. I think he has knocked around the world enough to know that what I say is true. I wish that spot didn't come down there. Now it is a great picture, that spot across there and on down there, a man full of character and the stamp of character. In my estimation he is a physiognomist. He knows what he wants to grasp to paint a picture. He is painting the society people of New York. This is to my own thinking a fine portrait, but society people unhappily are bad subjects, theatrical people are the best. Take homely people, and on the stage they are trained to talk and walk gracefully; why ? Simply because Charlotte Cushman, the homeliest person, I think, that ever walked in America, would walk across the stage a hundred times to see that she had it correct. Mr. Sevier showed me three pictures of this man. He is a bad subject (these are pictures of the Bradley Martin Ball, some of them have been published). Yet this man has tried again and again until he has got him in a position which he fits, and that is the best of the four. I would play smash in a drug store with the others. He is a bad subject. There is no way you can catch hold of him and put him in position.

"There is a man who never stands in a bad position, I will venture to say. Here is a woman who is a natural artist in the way of posing. I understand this was taken at a time when it was hard to keep them still long, yet this posing is fine.

"Here is a gem of the collection: 'The Princess Louise Reproduced by an American Girl,' that famous picture which I spoke of yesterday, which is one of the grandest expressions of portraiture. There the artist has caught it, got almost the face.

"You say perspective does not come into photography.

"I go into exhibitions where apples are painted on plates where you would have to hold them or they would roll off. I believe, I may be wrong—but I believe that portrait painters all over the world elevate their subjects, get them up on the platform. It gives dignity and repose. Nearly all the women over there (referring to the Auditorium) strike me as being too dumpy. They may be dumpy, but I would give them grace. I would get enough of that elevation to catch the dignity, to make them look taller. People on the stage look taller, and yet, at the same time, keep them down with your eye. Don't forget that sometimes when your subject sits down you have got your subject above those people. I would put it on the floor for that class. A lady brought me a picture and wanted me to talk candidly about it. I sat it down on the floor. She said: 'What makes you do that?' I said; 'That is where it belongs.' She said: 'Why, I made it to hang on the walls.' I said, 'You brought your fruit, your bananas in, and put them on a chair.' She said, 'I didn't; I put them on a candle box.' That was the difference. I said, 'Well, don't you see they are sliding down?' She grabbed up her picture, and walked out; but she came back in a few weeks and said, 'Well, I didn't like what you said very well; but it was the best lesson I ever got, and it didn't cost anything.' She had painted it all over.

"The old masters understood, and when they painted a ceiling with figures flying in it, you saw the bottom of their feet, simply because a man couldn't fly up there in any other way.

"The world is like a saucer. Go up on these hill-tops and the lake rises with you, but at the same time time keep your elevation down. I don't like to criticise the building in which I am speaking. The acoustic principles are splendid, and yet, when I look back (here Professor Griffith turned and looked at water painted upon the scenery behind him) I am all the time afraid that I am going to be washed off somewhere; it makes me feel as if there was just a bank holding that in, and then the first thing you knew that would slide away, and away you would go.

"When you make portraits or pictures take into consideration all these things. I thank you."

The applause was so prolonged that Professor Griffith came back and said:

"I wish I could have brought the whole gallery. This picture appealed to me because it was a good old motherly face. There is a pleasing portrait, and the people who loved and honored and respected that woman will love and honor this picture. This is a picture-portrait. There is no effort made to show you anything but the womanly character of the woman.

"I know who this one belongs to. If Pirie MacDonald is in the house, go out!"

By Mr. MacDonald: "Pirie MacDonald is out."

By Professor Griffith: "Pirie MacDonald, of all the pictures I have ever seen, has never equaled this. I don't know whether to attribute it to study or to accident."

By Mr. MacDonald: "I matched a man for that."

By Professor Griffith: "You certainly won."

"There is a fine collection of pictures, a row of portraits. This is also a portrait that not only tells a story of mother and child, but that grandest of all the halos that circle around a woman's head crowns this woman. She is a model mother, and her child is full of sympathy and likeness to her.

"In the Gallery at Dresden they placed Raphael's famous Madonna, and on either other side they placed marvelous pictures. In two or three years they discovered nobody saw anything but the Madonna, that marvelous type of a mother, touched by the God of Love and of Motherhood. They only saw that, and that one picture drowned all the other ones, and to-day go into that Gallery and you will see nothing but that one picture of Mother and Child. No one at the door need say, 'Take off your hat.'

"At Garfield's Memorial they have placed all around, the word 'Silence.' It is like painting a picture of a horse and then putting after it, 'It is a horse.' The majesty of the place, the marvelous memories of the man, should command silence. This picture commands admiration. I don't care who the woman is, who the child is. I don't look for her dress (though I see she has a magnificent dress)—my whole thought and interest center there—mother and child. If that woman hasn't a grand husband she will get one up there; she deserves it."

By the President: "To-morrow, at half-past ten, we will have another session and award the prizes, and Mr. Dundas Todd, the editor of *The Photo Beacon*, of Chicago, will give a criticism of the pictures for the audience."

Moved and carried that the Association tender Professor Griffith a vote of thanks for his lectures here.

Moved and carried to adjourn until 10.30, July 17, 1897.

SATURDAY, JULY 17, 1897.

By President Hayes: "Ladies and Gentlemen: The Judges are fixing their markings on the grand prize. It is necessary, in order to make markings on this class, to have the markings on the four divisions. They will be here in about forty minutes, then the Secretary will announce the prizes.

"I had the gentlemen go down through the art rooms. There is always a good, sharp critic, and then there is what is known as the Bogie Man. I think Mr. Todd fills that position in photography as a Bogie Man.

MR. DUNDAS TODD'S CRITICISMS.

"Mr. President, Ladies and Gentlemen: In the course of his brilliant speeches, Mr. Griffith favored you with a quotation which, it seems to me, ought to be the motif of every photographer—

> 'O wad some power the giftie gie us
> To see oursel's as ithers see us!
> It wad frae mony a blunder free us
> And foolish notion.'

"Your President has conferred that power upon me. He has shown me myself as others see me: I am a Bogie Man. I was always under the impression that I was one of the mildest and meekest mannered men that ever trod the earth, and the scales have dropped from my eyes. You know the old saying, give a dog an ill name and you may as well go hang him, so I am standing in the dire position of being carried off and executed. I won't say hung, because I believe that has gone out of fashion in this country, and when a man is to be sent to the next world, the President eyes him—you see him eyeing me (looking around at President Hayes)—then he presses a button, and the poor victim falls into the lake and is lost in oblivion. That fate may fall upon me any time in the next few minutes.

"Possibly, however, your President meant this little remark of his as a compliment. I find photographers enjoy some very curious compliments. I got one some months ago, and I have been thinking of it ever since. A photographer in the South sent me a letter. He said, 'Don't you know you are a second Jeremiah?' I didn't know it. I put him another one. I sent back the question, 'Who is Jeremiah?' His answer was a caution—'I am surprised that any Scotchman don't know who Jeremiah was.' If there is anything I have prided myself upon it is this. Nobody would ever suspect I was Scotch if I didn't go and tell them, and he swept that consolation away from me.

"A few weeks ago I was riding in a street car in Chicago, and there stood a man of my own shire, Aberdeenshire.

"His accent would go around Chicago by itself; so in course of our talk I said, 'What part of Aberdeenshire do you come from?' 'Oh, away up in the noarth.' I began mentioning the names of the towns. I don't mention the names of the towns now; I have mercy on the poor typewriter. At last I said to him, 'Foggylone?' He said, 'Yes; but, sure as death, I can't help it.' So I have to acknowledge that I am Scotch, but I can't help it.

"The popular opinion about Jeremiah is, he was a calamity howler—a man that went about many years prophesying all sorts of calamities—but that I consider to be a very mistaken idea about Jeremiah, He himself says his work was to pull down, to root out, to destroy, to build and to plant. If that is what my southern friend meant, that my work was of that nature when he called me a second Jeremiah, he gave me a great compliment indeed, and I only hope that I will be able to live up to such a course as that. In the last two years I have just endeavored to root up and to destroy and to throw down the old ideas of photographers and in their place to build and to plant new ones, and if, in the smallest degree, I have been able to accomplish that I have been able to do my work, and, in looking through the Convention Hall since I came down here, I am more than delighted with my results. There, I consider, is the finest collection of pictures by photographers that was ever gathered together anywhere in the history of this world.

"Understand you, when I say that I don't mean to insinuate that every exhibit over there is a work of art; very far from it. The majority of the pictures still show to me that the maker was in absolute ignorance of even the elementary principles of art. All the more glory to those who in the last year have been studying and have been able to produce such marvelous work as there is hanging there.

"A few nights ago I was reading a book (I read everything, I don't care what it is, good, bad or indifferent, and very rarely I find a book where there is nothing that strikes me).

"In this book that I was reading, the last book in the world where I would expect to find a grand thought, I found this: 'The greatest pain in the world is the pain of a new idea.'

"Just think of it. Not very long ago men were put to death for new ideas. In the present day, any man who brings forth a new idea is called crazy, or a socialist, or an anarchist, and the brighter the idea, the more oppressive is the world to him. That is all right. New ideas, met with indifference, die. New ideas, met with strong opposition, are the ones that live. The oak grows mighty and spreads over the acres around it simply by means of the strong blasts of winds that blow around it; and so ideas that meet with strong opposition are the very ones one expects to see survive. Two years ago I was impressed with a new idea by a series of pictures I saw at the Detroit Exposition. I stood and admired them, and talked about them, and the photographers gathered around and listened, and when my friend, in order to confer a great kindness on me, pulled me out and said, 'Todd, you are crazy, but if you hold your tongue, the boys won't know it,' said I, 'I will make you crazy in a year.' The Scotch blood in me rose quick, and when Scotch blood rises quick, look out! That man is in the Convention to-day. I hope he is here. And I want to tell you that to-day there are others that are crazy; he is crazy; the man is Pirie MacDonald.

"There are many pictures over there that show that the makers are still absolutely ignorant of the elementary principles.

"If they are doing work that is not right, the sooner they know it the better it is for themselves. Two things have to be considered in art, the lighting and the position. I am dealing with the plain mechanics. My work is not leading away up into dreamland, but to teach grammar, and this is the grammar of art that I want to rub into you. There are certain principles of lighting acknowledged by all the photographers the world over, and before photographers can make pictures they must go and know these principles as thoroughly as they know their A B C. Until they can shut their eyes and describe just the lighting they want to see on a face, they are absolutely ignorant of the elementary principles of lighting. It is the same way in composition. There are certain recognized laws, laid down in clear, definite language. The man ignorant of these laws may, once in a while, make an excellent picture, but he cannot possibly make good pictures all the time. Therefore, go and learn these elementary principles.

"I have the names of two books I think photographers should read. They are by an old photographer of Great Britain, H. P. Robinson. What I know of composition I owe to that man's books; therefore, in common justice to me and you I name them. One is, 'Picture Making by Photography'; the other, 'Pictorial Effect in Photography.' You can get these books from any of the publishers in New York City—Scovill & Adams, E. & H. T. Anthony & Co., E. L. Wilson—or you can order them from your local dealer.

"I bought dozens of books on art, and flung them aside as not appealing to me. After I got these books I read them a dozen, aye, a hundred times, so that out of my experience I speak. I speak with more hesitation on lighting, simply because, as a publisher, I am interested in a book by James Inglis on 'Artistic Lighting.' He has set the principles of lighting forth in what I think a wonderful way, and one must mention this work along with the books just mentioned.

"Before a person can speak any language correctly he has got to understand the rules of grammar, and before a man can make artistic pictures he has got to understand the principles of lighting and composition. But I want to warn you of one thing. Because a man happens to know the rules of grammar, he will not necessarily be able to write poetry; because you know the rules of lighting, it will not follow necessarily that you will make pictures. But you cannot make pictures without knowing these rules; you cannot write poetry without knowing the rules of grammar.

"I have spoken with too many I's in my speech. One photographer wrote me not long ago. He said: 'This letter would have been better if it had been blinder, but it is a very hard matter to keep the I's out'; and I realize I haven't been the only pebble on the beach. I have had wonderful help, and to that I want to pay acknowledgment. A year ago I spoke a sentence to you that came out of the fullness of my experience: 'The times of depression are times of awakening.'

"When business is good and the dollars come tumbling in the door, who is going to improve? Let well enough alone.

"But when business is dull, a man sits down and scratches his head and thinks. 'What can I do to improve this?' These are the times when business advances. The men who won't listen to new ideas are the ones who are going to the wall, Photographers are really the only people who want to sell the same goods to-day they were selling years ago. Suppose a local dry goods store tried to sell last year's fashions, how long would there be any business?"

Here Mr. C. S. Abbott stepped upon the platform and made an announcement regarding trains.

Mr. Todd resumed : "The point I was trying to make was this : You take the average business man in any town. He is on the lookout for novelties all the time, new styles. Photographers, I am sorry to say, are not. I would urge upon them the necessity to try new styles, new ideas, possibly one, six, ten will be a failure, but one may be a hit, and then you get ahead.

"The President informs me that there are other points coming up and suggests I be a little short in my remarks.

"I want to say I sometimes think photographers don't realize what a noble profession theirs ought to be, for what is there except perhaps the healing art and the saving of souls, more noble than the power of passing down to posterity the faces of the great men that have lived, and the even greater power of handing down the faces of the loved ones and the dear?

"I had an experience of this kind. During my first experience in photography, I attempted a family group which turned out a failure. In the group was a child of eight or nine. Her light dress and light face made an impression on the plate where the older ones had failed to make any ; by and by I found it in the way and flung it in the waste basket. Ten days after that, the child was taken sick and died, and the mother came down to me : 'Oh, if you have got anything, ever so little, of the baby, I would like it." I was grieved to the heart to have to say to her that I had put the negative away. That opened my eyes to the grandeur of the photographic business.

"Since then, I have never put away any negative, no matter how commonplace, until I knew that negative had been replaced by something better.

"Photographers are educators. They are teachers to millions of people in this country; they are the artistic standard, and, as educators, they are judged by the work they do.

"If they have been teaching truth, the reward will come. If they have been teaching what is false, they have got to pay the penalty that all false teachers pay. Has your work been true? If it has, it will stand. If it has not been true, it will be neglected by the public, and before you can make any headway you have got to go back to right principles.

"A great many people say : 'We are having bad times.' Pictures are a luxury; therefore, the picture business is dull. When good times come again, we will have all the business we want.' Possibly you will, but when I left Great Britain the photographic business was quiet, so was other business. Now, I find other business is excellent ; photography, deader than before. If you want to get the good times when they come again, take care that your work is up to the standard, and I have no fear for you."

By Mr. Cramer : "I propose that we extend a courtesy to the following two gentlemen : Professor A. H. Griffith, of Detroit, Mich., and Professor Fernando Ferrari Perez, of Mexico City, Mexico. I hereby propose them as honorary members of this Association." This motion was supported and carried.

By President Hayes : "It is necessary to take action in reference to the School of Photography. I hardly think the executive officers have taken the trouble to find out about the cost, and I think that better be looked up before any action is taken. Unless any members have anything to say, it will stand that way. We will now listen to the reading of the prizes."

The judges upon the four divisions were : Western Division, Messrs. Knaffl, Place and Rose ; Eastern Division, Messrs. Sperry, Guerin and Schneider : Southern Division, Messrs. MacDonald, Heath and Bellsmith ; Middle Division, Messrs. King, Edmundson and Heyn.

The names of the prize winners were then announced by Secretary Bowersox, and the various medals awarded as follows :

The grand genre prize, a handsome silver punch bowl and ladle, to the Baker Art Gallery, of Columbus, O.

Grand portrait prize to J. Ed. Rösch, of St. Louis, Mo.

Division prizes, gold, silver and bronze medals.

EASTERN DIVISION.

Genre.—W. R. Otto, Buffalo.

Class A.—First, Dudley Hoyt, Rochester ; second, A. N. Camp, Jamestown ; third, J. G. Nussbaumer, Buffalo ; fourth, H. S. Schervee, Worcester, Mass.

Class B.—First, J. B. Schriever, Emporium, Pa.; second, C. E. Smith, Greenville, Pa ; third, C. L. Rosevear, Toronto, Can.

Class D.—Silver medal, F. S. Jansen, Buffalo, N. Y. Bronze medals to all exhibitors having a certain percentage of merit: Remington, Buffalo ; S. Newman, New York City ; Lee Stearns, Wilkesbarre, Pa. ; W. B. Cairns, Newark, N. J.; W.

Ashman, Baltimore; W. W. Cowles, Seneca Falls, N. Y.; Van B. Wheaton, Schenectady, N. Y.; Charles E. Craven, Kane, Pa.; Tilton & Spuhler, Haverhill, Mass.; Rogers & Newing, Binghamton, N. Y.; Chapells Studio, Oil City, Pa.; E. E. Seavy, Newcastle, Pa.; John Betz, Jr., Baltimore; J. H. Hopkins, St. Thomas, Ont.; E. Talbot, Schenectady, N. Y.; F. W. Stiles, Westerly, R. I.; J. F. Jackson, Barrie, Ont.

Class E.—First, L. V. Kupper, Edinboro', Pa.; second, Tilton & Spuhler, Haverhill, Mass.

Class F.—First, Charles L. Rosevear, Toronto; second, J. E. Stanton, Sing Sing, N. Y.

Class G.—First, John Betz, Baltimore; second, C. L. Rosevear, Toronto; third, A. N. Camp, Jamestown.

Class H.—First, John Rösch, White Plains, N. Y.; second, George E. Tingley, Mystic, Conn.

Class I.—J. B. Schreiver, Emporium, Pa.

MIDDLE DIVISION.

Genre.—Baker's Art Gallery, Columbus, O.

Class A.—First, F. L. Stein, Milwaukee, Wis.; second, B. A. Brigden, Chicago; third, W. J. Root, Chicago; fourth, M. W. Minns, Akron, O.

Class B.—First, Thomas Harrison, Chicago; second, F. R. Barrows, Fort Wayne; third, H. J. Perry, Aurora, Ill.

Class C.—First, Klein, Milwaukee; second, George Smith, Cincinnati.

Class D.—Silver medal to William Godfrey, Chicago. Bronze medals to Gilbert Temple, Clinton, Ia.; O. H. Parke, Clarinda, Ia.; Nicholas & Son, Greenville, Ind.; C. B. Hinea, Valparaiso, Ind.; J. H. Hendrickson, Cleveland; W. T. Smith, Saginaw; Teubers, Chicago; The Loomis Photo Company, Galesburg; C. J. Van Deventer, Harlinville, Ill.; W. O. Husvogh, Chicago; Reuschler, Ann Arbor, Mich.; Parke Willis, Crawfordsville; Clifford & Son, Muscatine, Ill.; Hughes, Joliet, Ill.; Reeve, Monmouth, Ill.; Schreiber Brothers, West Bend, Ind.; Ben Larrimer, Marion, Ind.

Class G.—McPearson Brothers, Rockford, Ill.

Class H.—Allen Fanjoy, St. Louis.

SOUTHERN DIVISION.

Genre.—G. Moses & Son, New Orleans.

Class A.—First, F. M. Somers, Memphis; second, McCrary & Branson, Knoxville, Tenn.; third, G. Moses & Son, New Orleans; fourth, Knaffl Brothers, Knoxville.

Class B.—First, Homeier & Clark, Richmond; second, Thuss Brothers, Nashville, Tenn.; third, J. P. Howie, Columbus, S. C.

Class C.—First, McCrary & Branson, Knoxville; second, H. H. Hoffman, Savannah, Ga.

WESTERN DIVISION.

Genre.—F. W. Guerin, St. Louis.

Class A.—First, J. Ed. Rösch, St. Louis; second, George Steckel, Los Angeles, Cal.; third, F. W. Guerin, St. Louis; fourth, F. G. Schumacher, Los Angeles, Cal.

Class B.—First, H. A. Bellsmith, Denver; second, Rose & Company, Denver; third, P. Sweifel, Duluth.

Class C.—First, George Steckel, Los Angeles; second, E. Peck, Red Wing, Minn.

Class D.—P. H. Bower, Leavenworth, Kan., silver medal; Bushong & Felden, El Paso, bronze medal; S. Aune, Portland, Ore., bronze medal.

Class G.—E. E. Peck, Red Wing, Minn.

(Applause.)

By President Hayes: "It is very gratifying to have the decision of the judges so well received."

Mr. Schneider offered the following resolution:

"*Whereas*, At the expense of infinite labor and devotion, and without hope of reward, we are indebted to Pirie MacDonald for a most masterly and instructive exhibit; therefore, be it

"*Resolved*, That the thanks of the Photographers' Association of America be tendered him and expressed in suitable form by the Executive Committee."

Mr. Hammer, of St. Louis, offered the amendment that all officers that had made complimentary exhibits be included in this resolution. The resolution was passed as amended.

By Mr. Camp: "I desire to see those who have won prizes as they come forward."

By Mr. MacDonald: "After a great deal of thought and consultation on the part of some of the most prominent members of this Association, it has been thought advisable to go at the School of Photography notion carefully and guardedly, but none the less thoroughly."

"The same thought has been stated here that anything in the way of a school of photography is going to be hard to carry out without the expenditure of considerable money. We have got the money, but we want it expended very carefully, and I have a motion which I would like to present for your consideration,

"I move you, sir, that a committee, to be known as The Directors of the School of Photography, be appointed by the Chair, with power, they to meet at the same time as the Executive Committee, and they to pay their own expenses. This, gentlemen, gives the Chair the opportunity of picking out the best men, men who will work for the honor of having carried through an idea of this kind, for the honor of having been able to help you, and, of necessity, it must embody men of some experience and a little money, and, in this business as in all others, a little money expresses some head." Motion was carried.

By Mr. Bellsmith: "Word has come over from Mr. Varney that all having certificates must present them immediately or they will be worthless, and furthermore, there are a number of unclaimed letters over there.

By Mr. MacDonald: "I rise to inquire as to whether any resolution of thanks has been passed in favor of the citizens of Jamestown?"

By the President: "The stenographer says not."

By Mr. Cramer: "I don't see how we can bring this Convention to a close without expressing our word of most hearty thanks to the people of Jamestown in general, and to Charlie Abbott in particular. I think I speak in behalf of all present that this has been beyond all our expectations.

"We have been so gloriously extertained. Every moment has been a most blessed one. For all of this, I think we have to thank the people of Jamestown, that we have had the most pleasant time, and one that we shall never forget as long as we live. If there is any member here that goes home dissatisfied I will pity him, and request that he lock himself up in his darkroom and kick himself. All in favor of a vote of thanks for the citizens of Jamestown, Mr. Abbott and the press, please say aye—Oh, you do that" (to the President).

By Mr. MacDonald: "I think it would be wise to allow the members of the Executive Committee to prepare a preamble and resolution, and to have it duly published, for there are many in Jamestown who will not know about it unless they read it in some regular newspaper report, and I believe it should go in a card. Therefore, I move you, sir, that the Executive Committee be instructed to prepare a preamble and resolution, thanking the citizens of Jamestown, and, by the way, Mr. Cramer, the press are supposed to be citizens."

By Mr. Cramer: "I would like to have them specially mentioned, because they have given us such support."

This motion was seconded, applauded and carried.

By Mr. Hammer: "If this Convention will allow me just one word. I have been to this Convention and never had a chance to get in a word edgewise. One thing strikes me very forcibly in a convention of this kind, in Mr. Griffith's words, it is all boy's play to talk about producing a good picture on very short notice. I notice the request that every picture for this exhibition be made within one year. I believe that that is a ridiculous resolution. If it takes men years and years to create an idea and put it on canvas, it also takes photographers years and years to produce a photograph. If you will take Class A, it requires twelve pictures. Tell me of a man that can create twelve brilliant ideas in a period of twelve months, and do his best. It is almost impossible. Take the genre class. It is almost impossible to do that and do your regular work. I think it is no more than right that we take this idea that Professor Griffith advanced the other day and change the Constitution and By-Laws, so that that man that has created one beautiful picture in the year and is barred from putting that in may have an opportunity to put it in.

"I make the motion that the Executive Board be instructed to eliminate that rule from their mode of governing the Convention."

By Mr. Pirie MacDonald: "The question is unquestionably of great moment. I take issue with Mr. Hammer on the main point Granting that it does take time to create ideas of any kind of value, granting that other people do take much time to create pictures, we have in our hands a something that will allow us to create infinitely more rapidly. I am in favor of cutting down the size. That line of work is our love work. It is the work that comes from our soul, and we haven't had definite and distinct training in it, and to produce one masterly thing in one year is more than most of us can do in that class.

"In portraiture, again, I think that it is wrong to force a man to make, as we have, for example, last year, twenty-four pictures in Class A, or twelve, as we have this year.

"Twelve—the old baker's dozen notion! The twelve itself is ridiculous. Pictures should be made as single ones.

"I am distinctly in favor of having one grand prize for the one picture, and, if Mr. Hammer will allow me to suggest, I think the Executive Committee do not need, in this instance, to be forced to do something which they know is the spirit of this house, and would suggest that Mr. Hammer withdraw his resolution."

By Mr. Hammer: "I certainly will withdraw the resolution. I would just as lief create the sentiment as the force. I think it is far better to have three, four or five pictures in one class, and have them beautifully carried out than to have a dozen or twenty that are not so good. When you look at photography over there in the hall you think that it is a beautiful thing, but when you look at the misery and the awful work that is being turned out in portions of the country where people have not the facilities, you will see it is far better to make a few pictures and show the world how beautiful pictures can be made, than to let in every exhibit. You will find by taking ten, twelve or fifteen, or even twenty pictures, men who have made one or two good pieces of work are barred by the rule, and will take a picture of Mrs. So-and-so and think that is nice; that will do. Some pictures over here are simply grand, wonderful, but the next-door neighbor is awful, and the man loses by this. Rather have the exhibit small and beautiful than large and bad."

By Mr. Moses: "I would like to make a few remarks.

"Should the Convention be a place where one or two beautiful things are shown? Should it not be an exhibition of work such as we are endeavoring to give to our customers, and not just an effort to show what we can do? I don't see what advantage it can be if you show one or two brilliant things, and the work our customers get isn't up to the standard. We should endeavor to make everything we do brilliant."

By Mr. MacDonald: "Simply one notion in regard to that. Whether you have one picture or a thousand pictures you can't make the Convention do the work of the man's conscience. If the man makes one special effort during the year to make one exhibition, and then makes all the rest in a slipshod manner, it is a very short time before he is incapable of making even one picture of that virtue. My opinion of getting down the exhibits is this, that we are making our art commonplace by forcing people to make numbers of things of it. We have always had the short end of it because we have had working dozens. I claim there is such a thing as complete individuality in work, and that the single piece can as well represent the man as a dozen. I really believe that the photographers will take hold of the spirit of the thing, and that if you do put in a class for a single picture, that you will have more good pictures in that class than in each of a collection for a hundred years. They will all be ashamed that they can't make one picture. Remember next year we will look at your one picture, and if you can't make that we will know it. Show your hearts."

By Mr. Schervee: "I want to say of a photographer whom I met last year. I went into his place, and I would say that he was an artist in every way. What took me mostly was this, he made only one picture, and for that picture he had fifty marks. That picture is a card size, or 4 by 4. If you should ask that man for another picture from that negative, he wouldn't make it at any price."

A motion was next made and carried to extend a vote of thanks to the past year's officers for their labors in a position in which there is nothing but honor and a great deal of work.

By Mr. Swartout: "In answer to the few remarks made by the member over here about putting in the whole year's work to turn out one masterpiece. When a a person goes through life seeking to gain some mark for himself, for a selfish point, he will not gain that happiness. When we gain happiness we gain it from making happiness for others. If we study each face from the minute it comes in our studio until it leaves it is going to develop a certain amount of art that will bring to this Convention things we will be proud of.

"I have things I am proud of, but not enough that I am proud of, so but that I could put up some work and say, 'That is the very best thing I could do.' But I am ashamed of the work I made a year ago. By the side of the work I made a year ago I couldn't present enough to make up a fine collection now, but I could present a few that I would be proud of by the side of that work."

The motion was then made and carried that the Photographers' Association of America adjourn to meet at Celoron next year at the call of the Executive Committee.

A WONDERFUL exhibit of prints on Aristo-Platino paper was shown by the American Aristotype Company made up from the work of many of the leading studios of the country. This exhibit occupied a space by itself at the end of the Annex, and was greatly admired by all.

SOME ERRORS IN MIXING.

By W. Ethelbert Henry, C. E.*

MORE failures are due to improper mixing than is generally supposed. In the preparation of many photographic solutions this is particularly the case; take, as an instance, the admixture of the iron and potassium oxalate solutions forming the well-known ferrous oxalate developer.

This preparation, as generally used, comprises two solutions: one a solution of potassium oxalate, acidulated with oxalic acid, and the other a solution of ferrous sulphate acidulated with sulphuric acid. So far as making the separate solutions is concerned, there is little possibility of going wrong; but it is in the mixture of the two that failure frequently occurs. In order to make the developer ready for use, it is necessary to add to the potassium oxalate solution a certain proportion of the iron solution, the resulting liquid being a bright red color. If too much iron is added, the result will be a dense precipitate, and a similar precipitate occurs if the potassium be added to the iron, and the solution is rendered useless.

Care is necessary, also, in preparing a solution of metol. The metol must first of all be completely dissolved in plain water, and then the preservative, sodium sulphite, may be added to the solution and dissolved. If the order is reversed the methol will not dissolve properly; if the sulphite be added before the methol is entirely dissolved, the solution will throw out crystals in the course of a day or so.

But in preparing a pyro developer, the order of mixing must be reversed if we wish to have a colorless solution; in this instance the preservative must first be dissolved in the water, and this solution must then be poured over the dry pyro in order that the action of the air may have no opportunity of causing discoloration. A similar precaution should be observed in making a solution of hydroquinone, amidol or glycin.

Again, in combining any two or more of the foregoing developers we must consider the alkali used as an accelerator; for instance, metol, with potassium or sodium carbonates, may be combined with hydroquinone or glycin and the carbonates. On the other hand, amidol, which is so powerful a developer that alkaline sodium sulphite is a sufficient accelerator, will not admit of use with a carbonate. For this reason it should not be combined with any developer containing strong alkalies, such as carbonate of sodium or potassium, otherwise fog will ensue as a natural consequence.

It is desirable also, when making up some of the single solution intensifiers, to follow closely the directions as to the order of mixing, otherwise dense precipitates will fall and render the solutions quite useless.

Even in so simple a matter as preparing a toning bath, care is required, yet is rarely exercised by a novice; and as frequently as not the formula is blamed.

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* *The Amateur Photographer.*

Take the combined bath; in all formulas for this there are two separate solutions, one containing hypo, and the other gold chloride.

The directions invariably tell the maker to add the gold solution slowly, with constant agitation, to the solution containing hypo; does it not stand to reason that to take the contrary order is obviously incorrect?

Toning baths containing ammonium sulphocyanide are more frequently than not improperly mixed, and therefore incapable of properly performing their work.

Supposing we have a formula containing—

Ammonium sulphocyanide	20 grains
Gold chloride	2 "
Sodium sulphite	2 "
Water	20 ounces

what is the general method of mixing?

Very frequently the ingredients are thrown together haphazard, and in the majority of cases little care is observed in adding the gold chloride—which should, of course, be previously contained in an aqueous solution of known strength.

The result of adding the gold solution "all at once" is a reddish discoloration which ultimately disappears and leaves the solution colorless. This discoloration should not appear; it indicates improper mixing, and is the cause of unsatisfactory toning. There is not the slightest difficulty in avoiding it; simply add the gold solution in a freely diluted form a little at a time, and stir it in, or shake the solutions frequently, to ensure proper admixture.

While dealing with the sulphocyanide toning bath, let us observe a few more irregularities that frequently are due to careless mixing; presuming that the toning bath has been carefully prepared, and the proper number of prints for which it was made up have been toned therein, it should be thrown away after use. But many, with a view to economy, prefer to store the old bath and "strengthen" it for future use; and it is here that irregularity begins and gives cause to complaint. As soon as the bath refuses to tone, the novice usually "strengthens" it by adding more gold; if it still refuses to tone, more gold is added, but how often does he realize that more sulphocyanide of ammonium is also required? Gold in excess frequently causes a deposit of gold at the bottom of the toning dish instead of on the print. On the other hand, too large a proportion of sulphocyanide is a most prolific cause of yellow prints. Far fewer irregularities in toning would occur when this bath is used if only sufficient was freshly prepared for the batch of prints to be toned (allowing 1 grain of gold to each dozen quarter-plates) and no attempt made to "strengthen" or store it for future occasions.

Care is required in almost all photographic operations, and it is useless for a writer to give explicit directions as to mixing unless those directions are followed. Only a few weeks ago my attention was directed to several utter failures in making up a backing composition. The correspondent, before condemning the formula, forwarded it and stated exactly how he had worked, but several attempts he had made resulted in utter failure. The formula comprised liquid caramel, gum tragacanth mucilage, burnt sienna, and methylated spirit ; the spirit to be slowly added in a fine stream with constant stirring after all the other ingredients were thoroughly mixed. Everything went well with him until the final stage, but at this point the solids were precipitated in a lump. The reason, to anyone versed in the mixing of chemicals, was obvious ; he had added the spirit too rapidly, the spirit united with the water and forced the solids out of solution. Before starting to make up a formula, read it carefully, think the matter out and follow the directions ; if it fails, do not immediately blame the plates that will not develop, the paper that will not tone, the ingredients that refuse to remain in solution, or the wretched author of the formula; but think !

AT-HOME PORTRAITURE.

WRITING under the above title in *Photography* of June 24th, F. M. S. says :

"There is one branch of photography which the professional has neglected too much, that is, taking his customers in their own homes. Why he has neglected it is not easy to say. It may be that photographers are too conservative to start any new departure from the ordinary course of business, and that because photographers in wet-plate days did not lay themselves out for 'at-home' work, the photographer of to-day sticks in his studio and loses much work which might be had for the asking.

"In the sixties and seventies there were two reasons why photographers seldom thought of taking portraits anywhere except in their own studios. In the first place they could not spare the time to leave their studios, so great was the rush of sitters. In the second place wet plates made indoor work next to impossible, on account of the length of exposure, and the natural objection of people to have their carpets spoiled with drops of nitrate of silver solution. It only seems like yesterday when the deans of certain cathedrals decided to refuse photographers permission to work inside the buildings in their care because of the silver stains which now and then would drop from the most carefully drained plate and the most skilfully made dark slide. Now that dry plates have made what was almost impossible twenty years ago quite easy now, and as the tide of sitters has in most places almost ceased to flow, there is no excuse for the photographer stopping at home and looking out of his window and wishing for customers.

"There are many things to be gained by pushing 'at-home portraiture.' The photographer gets away from the deadly monotony which often seems to hang like a cobweb round him and his work. For no matter how often he changes his backgrounds or even rebuilds his studio, it is very difficult to keep from repetitions, though no one but the most apathetic ever repeats any position or effect of lighting consciously. Though his customers will sometimes wish to be taken like so-and-so, it would be a fatal mistake on the part of the photographer to accede to their request, for not only should he never give way to such laziness as copying himself or another, but as no one customer will ever look like another, the chances are that if the whim is humored, the proof will be rejected because it does not look like the photograph the sitter wished to copy. It may be objected by those who have practiced 'at-home portraiture' that there is not sufficient monotony in this kind of work, and that in its great variety of conditions and surroundings is that which makes success so difficult. The question is, what is a successful photographic portrait? Looked at from the sitter's point of view it must be a good likeness, one which flatters, rather than exaggerates, any shortcomings of feature, and which represents the sitter in a peaceful and happy frame of mind rather than an uneasy and uncomfortable one. Whether the portrait is expected to be more than this depends on the taste of the sitter, who, if he or she has been bred and born among refined and cultivated surroundings, will expect that the portrait will have pictorial qualities, or, at any rate, will not offend by the presence of any vulgarities. From the photographer's point of view, if he takes any pride in his work, it will have to be technically perfect, and, as a business man, he will expect it will be remunerative. Whether he will be able to give it any æsthetic qualities will depend on whether he has had the fortune or misfortune to be born with a nervous temperament; if he has, he will be able to make pictures for those who appreciate them; if he has not been born with pictures in his eyes, much of the pleasure and pain of this life will escape him.

"Going over the last paragraph, what do we find in connection with our subject? First, the question of likeness and representing the sitter in a happy, comfortable frame of mind. Where can the sitter be expected to look comfortable if not amid his or her everyday surroundings? Photographers, whose studios are their homes, do not sufficiently realize that to strangers everything is strange. They do not put themselves in their sitters' places and think of the effect of such strange surroundings as backgrounds, which threaten to fall on and crush or smother him. Thanks to the plate-makers and the new developers the head-rest is no longer necessary, but the remembrance and expectance of it is enough to unnerve any sitter. Then, for reasons which are patent to everyone, the light in a photographer's studio is seldom such as gives flattering portraits. The strange incomprehensible hankering after top light prevents pleasing portraits being made of any sitters but round-faced children. Of course, in big towns top light is the only light available, but even in places where surrounding buildings do not shut out side light and front light, photographers build their studios with top light, and make their sitters prematurely aged. Why? No one knows, except that such studios were built forty years ago. But in people's own homes there is no top light to make the young middle-aged and the middle-aged old. Our ancestors were wiser in their generation than we are. We use a blaze of light when we give a dinner party, and have a brilliant light above our sitters' heads. Our grandfathers used wax candles on a level with their guests' heads. A most useful object lesson for a photographer is to notice the beautiful effects of lighting at a table lit with candles in place of gas or the electric light. People who are plain under gaslight are beautiful when seen by candle-light.

"At-home portraiture is much easier in large rooms than in small ones, for then the photographer is able to put the sitter further from the light, and has more choice of surroundings; a long room with windows in the long side is much easier to work in than a room of similar length with a window at the narrow end. If possible, the room and its windows should be examined beforehand that some arrangement may be made about modifying the light. As a rule the light from ordinary windows is too strong, and the shadows consequently too dark. Reflectors should be used as sparingly as possible. It will pay anyone who has much at-home work to do to provide himself with a quantity of semi-transparent material to filter the light through. Material for stopping out unnecessary light entirely can always be found at the house where the photographer is working, either in the shape of blinds, folding screens, or brown paper. A room into which the afternoon sun shines can be made equal to, if not better than, any studio for portraiture, and advantage taken of subtle and unexpected effects of light, which the photographer would never hope to find in his northern light. For work under 8 x 6 a portrait lens is preferable, as the surroundings are not rendered with such painful sharpness as with a doublet, but for over 8 x 6 a portrait lens, unless stopped down, gives pictures which err too much the other way."

HARD ZINC vs. SOFT ZINC.

THERE seems to be considerable diversity of opinion among zinc etchers regarding the etching qualities of zinc. In the majority of cases the soft seems to be preferred, possibly from the fact that it was the first grade brought into use for photo-etching purposes; but that it is losing favor each year is an assured fact.

The real reasons, though, are obvious. With the soft zinc the finer lines and dots were easier to hold, from the fact that the etching bath was not required of very great strength, but as new methods have come to the front, so has hard zinc, as resists are now prepared of sufficient strength to withstand the strongest acid baths without losing or undercutting a single line.

The advantages of hard zinc over soft are numerous. With the latter it is seldom possible to etch a plate without sandy or fuzzy edges, while with the hard zinc, when once accustomed to properly handling it, perpendicular lines can be etched to almost any depth, and as rapidly as can be done on the soft.

These advantages make it especially favorable when the printing is to be done on cheap paper and run at a high speed, such as newspaper work.

Another noticeable feature to its advantage is the standard quality in which it runs, one lot being about the same in etching qualities as the other, while with soft zinc two sheets are seldom found to possess the same working features.

For the benefit of our readers who are not acquainted with the manner by which hard zinc can be successfully etched, we give below a process that forms a top, which will hold the smallest dot and stand an acid bath of any reasonable strength.

Making the print and rolling up with ink is carried on by the old method, which is known by every one familiar with the process.

When you have your print made and developed, powder it in the usual manner with dragon's blood powder, brush off the surplus and with a tuft of cotton wipe off perfectly, until the print has the appearance of having received no powder at all.

The plate is now slightly heated, not hotter than your hand can bear comfortably, then apply the following powder in precisely the same manner as was done with the dragon's blood.

The powder is prepared as follows :

Resin	2 ounces.
Gum shellac	6 "
Gum asphaltum	1 ounce.

Heat all together in a saucepan over a gentle fire until melted, mix thoroughly together, care being taken not to let it get too hot, otherwise it will scorch and injure its working quality.

Pour out onto a cold slab, or preferably into water. When hard, remove and dry ; place in a mortar and grind to the finest powder possible, sifting out the coarser parts and regrinding.

After the above powder has been applied and the plate cleaned perfectly, it is again heated, this time considerably hotter than at first.

While still warm the print is this time covered with Anthony's plumbago powder, the surplus removed, and with soft cotton the print rubbed over, using considerable pressure; continue until the print has a fine, glossy surface.

The plate is now ready for the etching bath, which can be used considerably stronger, and will stand a deeper bite than is possible by the old method.

By reading the above it may appear to consume considerable time to prepare a plate in this manner, but you will find that the time consumed is little more than ordinarily, but that time will be well spent by all who adopt the method.

It may be mentioned that the chief resist in this process is the shellac. There is no gum or preparation that will withstand the attack of acid better.

The last, but not least, that may be mentioned in favor of hard zinc is that it requires less polishing to prepare it ready for etching than the soft zinc, and with the extremely low first cost, why should it not be used more extensively ?

PROCESS NOTES.

The following is said to be a reliable formula for a protective enamel that will permit hard zinc to be etched satisfactorily:

La Page's glue	4	ounces.
Albumen	1	ounce.
Merck's bichromate of ammonia	½	"
Conc. aqua ammonia	25	drops.
Water	10	ounces.

When the zinc is polished and entirely free from grease, flow with the above enamel solution and dry while the plate is whirling. After the plate is exposed and developed, it is placed in a tray containing a 3 per cent. solution of formic aldehyde. In five minutes or so the enamel coating becomes so hardened by this last solution that it requires only to be dried hard to resist effectually the acid bath.

KALLITYPE PRINTING PROCESS.

Several questions have been raised by workers of the above process who seem to have had trouble in mixing the ferric oxalate and silver, owing to the precipitation of the latter salt. With reference to this difficulty we would say that this trouble may very readily come from using impure ferric oxalate or equally from the use of ferrous oxalate instead of ferric, as the ferric oxalate forms no precipitate with silver, while the ferrous oxalate does. We believe that if neutral ferric oxalate is used in this formula, precipitation of the silver salts will not follow.

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The entertainments provided by the citizens of Jamestown for their guests deserve special mention, and the efforts of the committees having them in charge are to be highly commended. On Monday evening an informal reception was held at Greenhurst, which was very largely attended, and which served to put all upon a footing of acquaintance and familiarized the newcomers with their surroundings. On Tuesday evening all members and their accompanying friends were entertained at the new theater, and on Wednesday evening, under the auspices of the manufacturers, the grand illumination of Hotel Greenhurst took place. The scene was one of great beauty, with its thousand lanterns, its beautifully decorated steamboats and small craft and the truly magnificent display of fireworks that was provided. On Thursday the entire afternoon was devoted to a trip up the beautiful lake, a stop for refreshments, a game of baseball and several races, and the evening was filled by an exceedingly attractive programme of music and entertainment at the Jamestown Opera House. On Friday evening occurred the grand ball at the Waldmere Hotel, given by the Demonstrators, which was fully attended, and was a pronounced success. Saturday evening was given over to informal receptions and good-byes, and with the week closed a most enjoyable convention from a social standpoint.

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"Ray filter Photography," beautifully illustrated with engravings of cloud and landscape pictures, is one of the most pleasing booklets of the year. Copies may be had gratis from the Bausch & Lomb Optical Company, Rochester, N. Y.

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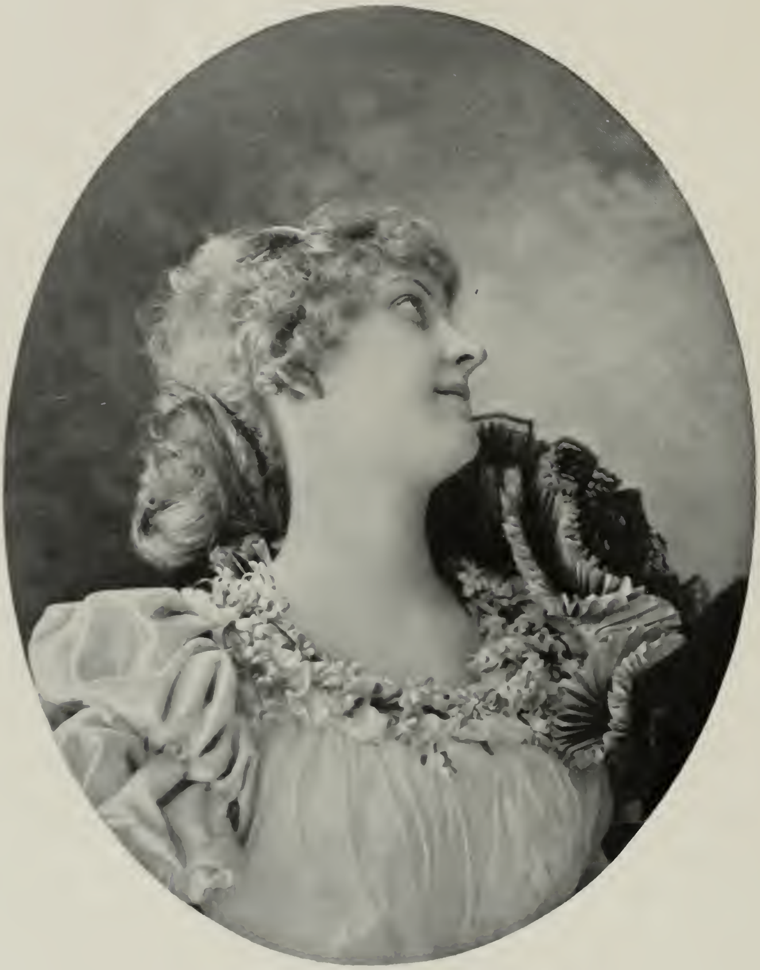

FROM GRAND PORTRAIT PRIZE EXHIBIT.

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P. A. OF A., 1897,
PHOTOGRAPH BY J. E. AND A. J. ROSCH,
ST. LOUIS, MO.

ANTHONY'S

Photographic Bulletin.

EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.
W. I. SCANDLIN.

Vol. XXVIII. SEPTEMBER, 1897. No. 9.

THE PHOTOGRAPHIC TENDENCY.

TO anyone who carefully notes the progress of photography and the output from the various studios there can be no mistake in the deduction that work of a much more artistic quality in every line of thought and manipulation is being produced to-day than has ever before been put upon the market. The reasons for this are not far to seek. We believe that the conventions, both national and State, have been a large factor in working out this result. The competition for prizes in the various classes, the opportunity to study and make mental or other notes upon the methods used in various studios, and the high aims which have been advocated in all the meetings and discussions of the conventions, are producing their natural results. We believe also that the amateur has done much toward bringing this about, although, perhaps, in a more indirect manner. The public taste is becoming educated to a higher standard each year, and it may safely be assumed that the amateur is responsible to a greater or less degree for the beginnings of this cultivation. As the standard is raised by the consumer, it becomes a matter of necessity for the producer to meet it or go to the wall, and the producer of good business ability and keen insight will not be satisfied in merely meeting the demand, but will at once proceed to create an increased demand, always striving to lead the popular taste rather than be led by it. The various exhibits shown throughout the country demonstrate clearly that there is a very noticeable stride being made in the production of original and unusual effects in photography, many of which seem to have been created in advance of the demand ; but in almost all cases where honest thought and effort underlies the action, the demand has responded to the supply and the originator has found himself suddenly launched into prosperity and success.

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Let us all remember, therefore, that the field is large and the opportunities are great, and believing that honest effort stands always a good show of recognition, let us set our aims high and produce during the coming year work which shall be of a decidedly better quality than any we have ever yet turned out. In other words, let the photographic fraternity court prosperity. She is ever shy, but with the proper equipment at our hands, the expenditure of a reasonable amount of study and thought will enable us to accomplish much more than, perhaps, any of us believe.

The Convention of 1897 is a thing of the past, but the lessons there learned will perpetuate its memory, and enable us to look forward to better things in the future than we have ever seen in the past.

RADIOTINT PHOTOGRAPHY.*

THE meeting of the Photographic Convention of the United Kingdom, at Great Yarmouth, last week, acquired considerable distinctiveness, if not distinction, by reason of the circumstance that the Dansac-Chassagne process of colour photography was first publicly demonstrated thereat. It is, we believe, to Sir Henry Trueman Wood that an acknowledgment must be made for bringing this about. Many examples of the process were shown, and a lady from Paris specially attended for the purpose of producing the coloured prints before the eyes of those who were anxious to watch the method of their preparation.

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IN common with most other members of the Convention, we very narrowly followed the manipulations of the process. A colourless solution, and three extremely dilute red, green and blue solutions were employed, and of the latter more concentrated solutions were at hand. The colourless solution and the three dilute colour solutions were several times successively brushed over the surface of the print, and blotted off after each application. The concentrated solutions were then very carefully locally applied. In the case of the portrait of a lady in classical attire, the arms, neck and face were painted red, and, the superfluous colour having been blotted off, the colour effect was finally built up and completed by means of the plain and dilute colour solutions.

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WRITING on this subject some months ago (*The British Journal of Photography*, February 5, 1897, p. 81) we expressed the opinion that the Dansac-Chassagne process could only be regarded as a not too effective method of colouring photographs. What we saw last week fortifies us in that opinion. We do not believe that selective colour absorption has anything to do with the *rationale* of the process. This theory has all along been advanced on trust. Not one tittle of evidence has been adduced to support it. We believe we are correct in saying that at one of the demonstrations an ordinary piece of white paper was made to take the colours just as the silver-albumen photograph was made to do. How does selection come in here? In short we are convinced, as was every practical photographer at Yarmouth last week, that the Dansac-Chassagne process is simply a method of harmoniously colouring photographs with which persons of some artistic skill can produce very passable results. Surely, were it otherwise, it would be the easiest thing in the world to prove that selective colour absorption had something to do with the matter. Our faith in the existence of this strange phenomenon received an irrecoverable shock when we saw, last week, the local application of colour. Apparently the manipulator does the selection, not the photograph and the colour. It should be noted that, as the demonstrator was unable to understand or speak English, no opportunity was given for putting questions. The last word has not been said on this subject, and, for one thing, we are curious to know the results of the experiments with the process which Captain Abney was said, last February, to have had an opportunity of making.

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* Reprint of editorial comment, *The British Journal of Photography*, July 23, 1897.

Items of Interest

THE Photographers' Convention of the United Kingdom, which was held in Yarmouth, England, simultaneously with our own National Convention, was conducted largely on the same or similar lines to ours; business meetings, papers on live topics and discussions, being interspersed with entertainments and excursions and the annual dinner, with its toasts and good fellowship. It is more and more getting to be realized that the annual coming together of the members of the craft is exerting an influence for good that is impossible of over-estimating.

* * *

THE oft-mentioned subject of uniformity of system in weights and measures is again being brought up by some of our foreign contemporaries, and we agree with them that it would be a boon to the profession and its amateur friends if such a system could be made available and universal. A vast deal of patience and valuable time is now consumed in the conversion of one system to the other, and many valuable suggestions and formulas are entirely disregarded and thrown aside which otherwise would be given a trial, at least. How is it to be brought about?

* * *

SPEAKING of the influence of photography upon art, Mr. Val Prinsep, R. A., lately said: "The influence of photography has much to do with modern art. The artist wishes to vie with the camera, and yet he can never come up to it, for art, of necessity, must always be a compromise. The human eye cannot come up to the eye of the lens, or the hand approach the chemical perfection of photography. A really first-rate man can take in a scene and reproduce it by only giving the salient points. If he can do that and present beauty as well as character, then he is a very big man indeed. Photography, which has decidedly, as I have just said, influenced modern art, is a great aid to an artist, if used properly and in a very subordinate way. It shortens his labor, but it takes a very first-class man to know how to use it, for he must look at Nature with his own eyes and not with the eye of the lens." Applying his remarks to miniature painting he deplored the vast and growing dependency of the artist upon the photograph, adding that very few of the hundreds of miniatures brought before the Royal Academy showed independent study.

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PROFESSOR ALBERT S. BICKMORE and Professor D. L. Elmendorf, connected with the Department of Public Instruction of the Museum of Natural History of New York, are devoting the summer to an extensive trip through the Rocky Mountains and the West with the purpose of securing views for the illustrated lectures in the schools of New York, which have become so very popular. Professor Bickmore lately stated that these lectures last year reached more than one million persons.

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THE Aintree Photographic Society of Liverpool, England, announce their fourth annual exhibition of photographic work to take place on the 9th, 10th and 11th of December of this year, in which an open class for amateurs at home and abroad is a feature, and for which a silver medal constitutes the first prize, a bronze medal the second, and a certificate the third.

This class is made up of four divisions:

Class H.—Four direct prints. Landscape, seascape, or architecture, any size.

Class I.—Hand camera. Set of six direct prints, any size or subject. (Camera to have been held in the hand.)

Class K.—Enlargements. Set of two prints, not less than four times enlarged, and must be accompanied with a print from direct negative.

Class L.—Lantern slides. Set of six, any subject.

Foreign pictures must be sent unframed, but mounted.

All entries and other communications are to be addressed to

The Hon. Secretary
Mr. D. TRAVIS, Fazakerley, Liverpool.

◆

THE Franklin Printing and Engraving Company of Toledo, O., have recently put in a very complete line of photo supplies, both for the professional and amateur, with free delivery for the city trade, which will no doubt be appreciated by the local photographers.

The photo supply department is in charge of Mr. M. Alison Martin, who has been with the old firm of Sessions & Kohne for several years and is well known to the trade through that section.

The following suggestion appears over the signature G. E. B. in *The Amateur Photographer* of July 30th, and as a simple and thoroughly convenient negative register seems to be without reproach :

"A list of one's negatives is always useful, and particularly so if it contains a print from each. A most convenient way of making such a register is as follows : Cut some pieces of ferro-prussiate paper of same width as your negatives, but an inch longer. Print from the negatives on to these, keeping the printed portion in each case towards the right hand of the paper, so as to leave an unprinted strip an inch in width on the left. When these prints are washed and dried, the name and number is written boldly in the right-hand lower corner with a fine camel's-hair brush dipped in a solution of potassium oxalate (1 part in 6 parts of water). The writing appears in pure white letters on the blue print. These blue prints are bound together in lots of, say, twenty-five, being fastened with paper fasteners or strong thread passed through the inch strip on the left. Particulars of the negative can be written on the back of the print, and the system has the advantage that one can glance through the subjects of all one's negatives in a few moments."

OBITUARY.

DEATH has been busy in our ranks since our last publication, and we have to record the passing away of Mr. Martin Hilt of Philadelphia, on August 3d, who was one of the old-time daguerreotypers and one of the first to enter the field of photography in Philadelphia. Mr. Hilt was eighty-six years of age at the time of his disease.

* * *

Mr. Spencer A. Taylor, of Schenectady, N. Y., one of the oldest and most prominent photographers of the State, died on July 21st, at the age of seventy-two years.

* * *

Mr. Ben. Bingham, the oldest photographer in Memphis, Tenn., and well known throughout the South, died at the age of sixty-three years.

* * *

Mr. James W. McDonough, whose name has been well known in connection with the application of color printing to commercial uses by the aid of photography, has just died at the age of fifty-two years only. Much of Mr. McDonough's later life has been devoted to experimenting on these lines, in which he was an enthusiast.

* * *

The death is announced of Mr. Isaac Strauss, of St. Louis, at the age of seventy-three years. Mr. Strauss was the father of Mr. J. C. Strauss, whose photographic work is so familiar to readers of the Bulletin.

MECHANICAL RETOUCHERS.

By E. J. Prindle.

QUITE a number of mechanical contrivances have been devised to give the short motions to the pencil necessary in retouching a negative, while leaving the general control to the operator. The first device invented for this purpose is that shown in Fig. 1. Here an ordinary pencil is given a rapid back-and-forth motion by clockwork. A stationary case containing clockwork has openings in its upper part in which slides a tubular case containing a pencil. A flat spring secured to the stationary case bears on a lug on the pencil case and yieldingly holds the pencil in the direction of its point. A second flat spring is secured to the stationary case, and also bears on a lug on the pencil case, but it also has a lug upon it, which rests against the teeth of a cam or wheel that is rotated by clockwork; and, as the cam rotates, it throws back the lug and spring rapidly and reciprocates the pencil. The case is stationary, and the negative must be moved with relation to the pencil.

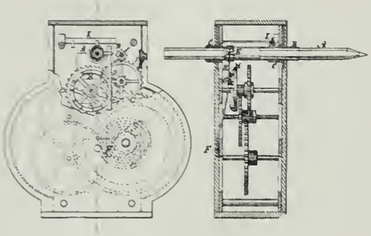

Fig. 1.

The retouching machine shown in Fig. 2 gives the pencil point both a sidewise and a forward-and-back motion. A vertical shaft is mounted in bearings at the rear of the frame, and carries a bevel friction wheel on its lower end, which engages with a hand-driven friction wheel mounted on a stud on the frame. The upper end of the shaft carries a cam and an eccentric. The eccentric is embraced by the forked end of a pivoted lever, whose outer end is also forked, and encloses the upper end of a tube which telescopes over the pencil-carrying tube below. The cam is engaged by the hooked end of a sliding bar which has an open slot in its forward end for engaging the tube by which the pencil is carried. A spring which is hooked to the sliding bar and to the frame keeps the former in contact with the cam on the shaft. The effect of the cam is to give the pencil a motion toward and from the hand wheel, and the eccentric produces a motion at right angles to this. The pencil is pressed down by a coiled spring in the upper end of the tube, but the two tubes can be locked together by a thumb screw. A small lever pivoted on one tube and engaging a pin on the other tube can be operated to raise the pencil point. The lower end of the pencil-carrying tube passes through a sleeve which is pivoted to a fork, which latter is also pivoted. The fork is carried in the lower end of a vertically sliding rod, and a link is pivoted to the frame and to the part in which the yoke is pivoted; and, by means

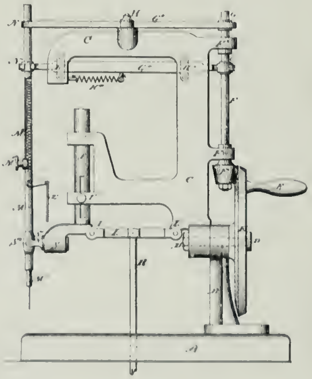

Fig. 2.

of a treadle attached to this link, the yoke may, carrying with it the pencil, be raised or lowered. A thumb-screw is provided for securing the vertically sliding rod in any desired position. The upper part of the frame is pivoted to the lower part of the frame by the stud of the hand wheel, so that it can be tilted to one side or the other. The line traced by the pencil, as the plate is passed under it, is like a series of figures 8.

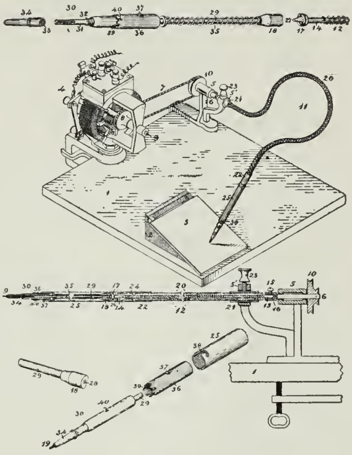

Fig. 3.

In Fig. 3 is shown a retouching machine which is operated by an electric motor. A belt pulley on the motor is connected by an endless cord with a pulley on a shaft that has bearings in a bracket clamped to the table. A rod to which a long wire coil is attached is secured in a socket in the end of this shaft, and this coil, enclosed in a woven casing, rotates with the shaft and carries at its opposite end another wire rod. The second rod rotates in a tubular casing for the pencil. The pencil is clamped in a tube on the end of a rod which is free to slide back and forth in the pencil case, but which cannot turn in it, and a wire coil around the pencil-carrying rod tends to keep the pencil retracted. On the end of this rod is a collar whose rear end is formed with two raised and two depressed portions. A cross pin on the end of the rod that is carried by the wire coil engages the raised portions on the collar as the coil revolves and gives the pencil point a rapid, reciprocating motion. There is a pin on the clamp which holds the pencil lead, which pin engages one of a series of notches of unequal depth that are formed in the end of an adjustable sleeve, so that the distance which the retracting spring withdraws the pencil point into the tube can be adjusted by the use of one or another of these notches. This machine stipples the plate instead of cross-hatching it.

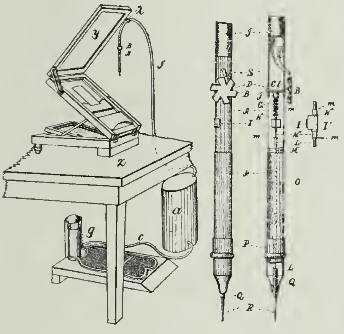

Fig. 4.

The subject of Fig. 4 is a retouching device that is worked by compressed air. The air is compressed by a treadle-operated pump and forced into a cylinder which serves as a reservoir. From the cylinder it passes through a flexible tube to the pencil case where it issues through a small nozzle, and, by striking the vanes of a little wind-wheel, rapidly rotates a small shaft that is mounted in the casing and that carries an eccentric lug at its center. The pencil is carried on the end of a rod which slides in bearings formed in the pencil case, and it is retracted by a coiled spring that is interposed between the block on the end of the rod and one of its bearings. The spring holds the block against the eccentric lug on the shaft, and thus the rotation of the shaft gives the back-and-forth motion to the pencil point. By means of a sliding stop that engages a flattened portion on the pencil-carrying rod the motion of the rod toward the cam is limited, and the force of the blow of the pencil on the negative is accordingly regulated. This machine, like the one described before it, produces a stipple.

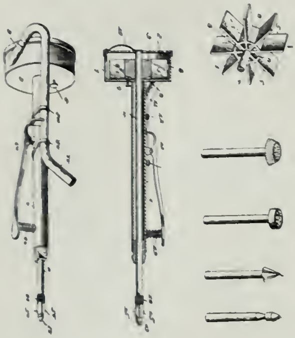
Fig. 5.

The device illustrated by Fig. 5 is another form of compressed-air retoucher. The pencil is here carried in the end of a shaft that rotates in a handle. The rear end of the shaft carries a paddle wheel that is turned by a jet of air entering through a flexible tube from a compressor. The paddle wheel has a series of ribs and depressions in its side, and a thumb-screw in the adjacent portion of the casing is arranged in the path of the inclined sides of these ribs. A spring, bearing on the end of the shaft, holds the paddle wheel up against the thumb-screw, and, as the wheel rotates, the ribs ride over the thumb-screw and give the shaft a reciprocating motion in addition to its motion of rotation. With this device all sorts of rotating cutters and grinders can be used in addition to the pencil point, thus enabling the operator to remove the silver from the negative, for instance, from any objectionable bright spots on the eyes. A spring-pressed lever on the casing bears against the tube which conveys the air and serves as a means for regulating the speed of the shaft.

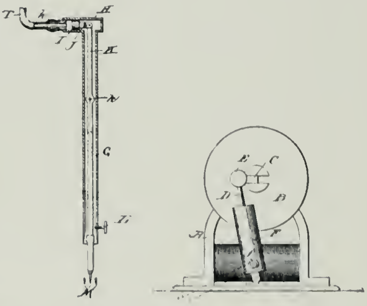

Fig. 6.

A compressed-air retoucher with an oscillating motion of the pencil-carrying bar is shown in Fig. 6. The compressed air is furnished by an oscillating pump driven by an electric motor, and, as there are no valves in the pump, there are alternate compressions and rarefactions in the tube. The pencil case is a long tube in which is pivoted the pencil-carrying bar, and the long tube has a short cylinder at right angles to it on the upper end. A piston in the cylinder is pivoted to the bar, and the effect of the pump is to rapidly reciprocate this piston and thus oscillate the pencil-carrying bar. By adjusting the length of the crank on the motor, the stroke of the pistons can be regulated.

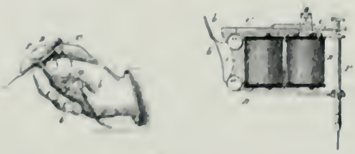
Fig. 7.

The electric motor and the pencil carrier have been combined in very compact form in the machine shown in Fig. 7. A frame has secured to it an electro-magnet for the wires of which two binding posts are provided. The pencil is carried by a bar that is rigidly screwed into two arms projecting from the frame. An armature above the magnet poles is mounted on a spring which is secured to the frame. The spring bears against an adjustable screw which is connected to one of the wires, the spring being connected to the other wire. When the current is turned on, the armature is drawn towards the magnet, thus breaking the circuit, and this causes the magnet to cease acting, when the spring flies back again to the contact screw, carrying with it the armature. In the free end of the armature is a thumb screw that strikes against the end of the pencil. The effect of this rapid oscillation of the armature is to throw the frame and pencil back and forth against the negative or along its surface, according to the angle at which the pencil is held.

WRITING of the development of over-exposed plates, H. Schmidt, in the *Photographic Rundschau*, sets forth a new method of working which he commends very highly. His method is to prepare, before developing, a solution of 77 grains of nitrate of silver in 3½ ounces of water. Having this solution ready at hand, and removing the plate to it after thoroughly washing, if it flashes up quickly in development, leaving it in this solution for several minutes. The plate is then removed and well washed a second time and returned to the first developer, where it will acquire the desired intensity in the usual way. In many cases where this treatment is employed, the negative will require further intensification, for which the following formula is recommended :

A.

Pyrogallol	154 grains.
Alcohol, 96 per cent	3½ ounces.

B.

Nitrate of silver	31 grains.
Citric acid	46 "
Distilled water	3½ ounces.

These two solutions are kept separate until required for use. For intensification, take 68 minims of Solution A and 3½ ounces of water, and add to it 68 minims of B. After thoroughly washing the negative, it is placed in this bath; and when the desired intensification has been obtained, it is again thoroughly washed and fixed.

IT is announced that an exhibition of the work of amateur photographers will be one of the features of the forthcoming Sixty-fifth Fair of the American Institute at Madison Square Garden September 20th to November 3d. Well-known artists will act as judges in the various departments of genre, landscape, marine, portraits, instantaneous, enlargements and interiors. In order to limit the space, a nominal charge of 20 cents per square foot is to be made. Entries will close on the 18th of September, and every exhibit must be in order before the 20th.

Full particulars may be obtained from Mr. George G. Rockwood, 1440 Broadway, New York.

JUDGES' MARKINGS ON THE PRIZE WINNERS.

THE following table of markings made by the judges at the late Celoron Convention has been carefully made up, and represents the basis of the awards in all classes:

In the *Genre Class*, the markings considered were upon the following points: 1st, Illustration; 2d, Originality; 3d, Photographic Results.

In the *Portrait Classes*, the basis of marking was: 1st, Posing; 2d, Lighting; 3d, Chemical Effect

In *Classes E, F, G* and *H:* 1st, Pictorial Effect; 2d, Chemical Effect.

In *Class I* General Effect only was considered, and in *Class K:* 1st, Posing; 2d, Lighting; 3d, Chemical Effect.

Three judges were appointed for each division, and the markings herewith are the results of their labors.

EASTERN DIVISION.

	1st Judge.			Total	2d Judge.			Total	3d Judge.			Total	Average Total.
Genre Class—													
W. R. Otto	7	6	8	21	5	5	5	15	5	5	6	16	17⅓
Class A—													
Dudley Hoyt	8	9	8½	25½	7	9	8	24	8	8	8	24	24⅔
A. N. Camp	8	8	9	25	7	8	8	23	6	7	8	21	23
Geo. Nussbaumer	7½	7½	8	23	7	8	7	22	6	6	7	19	21⅓
Schervee	7	6½	8	21½	7	7	7	21	6	6	6	18	20⅔
Class B—													
J. B. Schreiver	8	8	9	25	7	8	9	24	7	7	7	21	23⅓
G. C. Smith	5	7	6	18	7	7	8	22	6	7	7	20	20
Rosevear	5	5½	6	16½	5	8	6	19	4	5	5	14	16½
Class C—													
Mineart	2	3	2	7	0	5	0	5	5	2	1	8	6⅔*
Camp	1	0	0	1	2	2	0	4	2	0	0	2	2¼
Class D—													
Jansen	8	8½	9	25½	9	9	9	27	8	9	8	24	25⅔†
Ashman	6	8	7	21	8	8	9	25	6½	7	7½	21	22⅓
Craven	7	6	8	21	7	7	7	21	7	6½	8½	22	21⅓
Cowles	8	6	7	21	7	8	7	22	7	7	8	22	21⅓
Tilton & Spuhler	6	8	7	21	8	8	7	23	7	7	7	21	21⅔
Rogers & Newing	6	8	7	21	8	7	8	23	8	7	6	21	21⅔
J. F. Jackson	7	6	8	21	8	7	7	22	7	6½	6½	20	21
Chappell	7	8	7	22	7	7	7	21	6	7	8	21	21⅓
Van B. Wheaton	7	8	7	22	8	7	7	22	7	7	7	21	21⅔
J. Betz, Jr.	8	7	7	22	7	7	7	21	7	7	7	21	21⅓
Seavey	8	8	7	23	7	7	7	21	7	7	7	21	21⅔
Remington	6	8	7	21	8	8	9	25	7	8	7	22	22⅔
Hopkins	7	8	6	21	7	7	7	21	7	7	7	21	21
Newman	7	6	8	21	8	9	9	26	7	6½	6½	20	22⅓
Stearns	6	8	7	21	8	8	8	24	6	7	8	21	22⅔
Cairns	8	7	7	22	7	7	8	22	6	7	8	21	21⅔
Talbott	6	8	7	21	7	7	7	21	7	7	7	21	21
Stiles	6	7	8	21	7	7	7	21	7	7	7	21	21
Class E—													
Kupper	8½	9½	....	18	....	8	8	16	....	8	9	17	17
Tilton & Spuhler	8	5	....	13	....	8	7	15	....	8	8	16	14⅔
Class F—													
Stanton	....	2	0	2	....	2	0	2	....	4	3⅛	7⅛	4‡
Rosevear	....	3	1	4	....	2	2	4	....	4	4	8	5⅓§
Class G—													
J. Betz, Jr.	....	....	....	8½	....	....	....	8	....	....	....	8	8⅙
Charles Rosevear	....	....	....	9	....	....	....	9	....	....	....	6	8
A. N. Camp	....	....	....	7	....	....	....	7	....	....	....	7	7
Class H—													
John Rösch	....	9	9	18	....	9	9	18	....	7	7	14	16⅔
G. E. Tingley	....	8	8	16	....	8	8	16	....	7	6½	13½	15⅛
Class I—													
J. B. Schreiver.	Diploma.												

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* Only two entries. † Silver medal, to all having 21 points or over, bronze medals. ‡ Bronze. § Silver.

SOUTHERN DIVISION.

	1st Judge.			Total	2d Judge.			Total	3d Judge.			Total	Average Total.
Genre Class—													
G. Moses & Son	6	8	7	21	7	7	8	22	5	5	7	17	20
Class A—													
F. M. Sommers	8	7	6	21	8	8	8	24	8	8	7	23	22⅔
Knaffl Bros	6	6	7	19	6	7	7	20	6	6	7	19	19⅓
McCrary & Branson	7	5	6	18	6	5	6	17	7	6	6	19	18
G. Moses & Son	6	6	5	17	5	6	5	16	6	6	6	18	17
Class B—													
Homeir & Clark	6	7	7	20	7	6	6	19	6	6	6	18	19
Thuss Bros	6	4	4	14	5	5	5	15	4	6	5	15	15⅔
Howie	3	3	4	10	3	3	2	8	3	4	2	9	9
Class C—													
McCrary & Branson	5	1	4	10	9	0	3	12	6	4	4	14	12
Hoffman	3	2	6	11	4	0	2	6	4	4	4	12	9
Class D—													
Mrs. Condon	8	7	8	23	7	7	8	22	7	8	7	22	22⅓*
Alderman	7	7	7	21	7	8	6	21	8	7	8	23	21⅔†
Class E—													
McCrary & Branson	....	8	8	16	....	8	9	17	....	7	8	15	16
O. P. Havens	....	5	7	12	....	8	8	16	....	7	6	13	13⅔
Class F—													
O. P. Havens	....	7	8	15	....	8	8	16	....	7	8	15	15⅓
McCrary & Branson	....	6	6	12	....	8	8	16	...	7	6	13	13⅔
Class G—													
Knaffl Bros	....	8	7	15	....	8	8	16	....	8	9	17	16
McCrary & Branson	....	8	8	16	....	8	7	15	....	8	7	15	15⅓
J. C. Coovert	....	5	5	10	....	7	7	14	....	6	6	12	12
Class H—													
J. C. Coovert	....	5	6	11	....	4	4	8	....	7	6	13	10⅔
Class I—													
Knaffl Bros	Diploma.												

*Silver medal. † Bronze medal.

WESTERN DIVISION.

	1st Judge.			Total	2d Judge.			Total	3d Judge.			Total	Average Total.
Genre Class.—													
F. W. Guerin	7	7	7	21	8	9	9	26	8	8	8	24	23⅔
Class A—													
Geo. Steckel	7	7	7	21	9	9	9	27	8	8	7	23	23⅔*
J. Ed. Rösch	8	8	8	24	8	9	8	25	8	9	9	26	25†
F. W. Guerin	8	6	6	20	8	7	8	23	7	7	8	22	21⅔‡
Schumacher	7	7	7	21	7	6	7	20	8	6	6	20	20⅓§
Class B—													
H. S. Bellsmith	7	7	7	21	8	4	7	19	5	4	5	14	18
Rose & Co.	7	6	7	20	6	6	6	18	5	4	4	13	17
Zweifel	4	4½	4	12½	6	6	5	17	5	4	4	13	14⅙
Class C—													
Steckel	8	8	8	24	9	9	9	27	8	7	8	23	24⅔
E. E. Peck	5	4	3	12	4	3	2	9	4	3	3	10	10⅓
Class D—													
Bauer	8	8	9	25	8	8	8	24	7	8	8	23	24‖
Bushong & Feldman	7	7	7	21	7	7	8	22	6	8	8	22	21⅔
S. Aune	7	7	7	21	7	7	7	21	6	7	8	21	21
Classes E and F—													
No entries	....	....	....	....	....	....	....	....	....	....	....	....	......
Class G—													
E. E. Peck	....	8	9	17	....	9	8	17	....	7	7	14	16

*Silver medal. † Gold medal. ‡ Bronze medal. § Diploma. ‖ Silver medal.

MIDDLE DIVISION.

	1st Judge.			Total	2d Judge.			Total	3d Judge.			Total	Average Total.
Genre Class—													
Baker's Art Gall'y	9	7	9	25	8	8	8	24	8	8	8	24	24⅓
Class A—													
S. L. Stein.......	8	8	9	25	8	7	9	24	7	7	9	23	24
B. O. Brigden....	6	5	4	15	8	8	7	23	8	8	6	22	20
W. J. Root.......	6	7	6	19	7	8	7	22	5	5	7	17	19⅛
H. W. Minns.....	6	4	5	15	6	6	6	18	5	4	5	14	15⅔
Class B—													
Thos. Harrison...	7	8	8	23	7	7	8	22	7	8	8	23	22⅔
F. R. Barrows...	7	7	6	20	7	7	7	21	7	6	6	19	20
H. I. Perry......	6	7	6	19	6	6	7	19	7	5	5	17	18⅓
Class C—													
Klein........ ..	6	7	7	20	5	7	9	21	5	3	....	8	16⅓
Geo. Smith......	5	4	6	15	4	5	7	16	4	3	....	7	12⅓
Class D—													
Wm. Godfrey....	7	7	8	23	8	9	8	25	7	8	9	24	24*
Hughes..........	7	7	7	21	8	7	7	22	7	7	7	21	21⅓
Clifford & Son....	7	7	7	21	7	8	6	21	7	7	7	21	21
Parke Willis.....	7	7	7	21	8	7	6	21	8	7	7	22	21⅓
Rentschler.......	7	7	7	21	8	8	7	23	7	7	7	21	21⅔
W. O. Huszagh...	7	7	7	21	7	7	8	22	7	7	7	21	21⅓
C. J. VanDeventer	7	7	7	21	6	7	8	21	7	7	7	21	21
Schreiber Bros...	7	7	7	21	7	6	8	21	7	7	7	21	21
Ben Larrimer...	7	7	7	21	7	8	6	21	8	7	7	22	21⅓
Langdon........	7	7	7	21	7	7	7	21	7	7	7	21	21
Teubers...	7	7	7	21	7	8	7	22	7	7	7	21	21⅓
Loomis Photo Co.	7	7	7	21	7	8	7	22	7	7	7	21	21⅓
J. M. Brigham...	7	7	7	21	8	6	7	21	7	7	7	21	21
W. L. Smith.....	7	7	7	21	9	6	7	22	7	7	7	21	21⅓
J. H. Heinrickson	7	7	7	21	7	6	8	21	8	7	7	22	21⅛
Nicholson & Son..	7	7	7	21	9	7	8	24	7	8	8	23	22⅔
C. B. Hinea......	7	7	7	21	7	9	8	24	7	7	7	21	22
O. H. Park... ...	4	6	6	16	8	8	8	24	7	8	8	23	21
Gilbert Temple..	7	7	7	21	7	8	7	22	7	7	7	21	21⅓
Classes E and F—													
No Entries......													
Class G—													
McPherson Bros..	...	7	7	14	....	7	7	14	...	9	9	18	15⅓
Class H—													
Allen Fanjoy....	....	7	8	15	....	7	7	14	....	9	9	18	15⅔
Class I—													
S. L. Stein......	Diploma.												

* Silver medal. To all having 21 points or over, bronze medal.

METHODS OF CONTROL, AND THEIR INFLUENCE ON THE DEVELOPMENT OF ARTISTIC PHOTOGRAPHY.

By A. Horsley Hinton.*

THE following paper, read by Mr. A. Horsley Hinton before the recent Photographic Convention of the United Kingdom, bears so closely upon many of the questions of the day in our own country that it is reproduced in full:

"Unless I am mistaken, papers professedly dealing with what is, rightly or wrongly, termed the art side of photography have not hitherto very prominently figured in the Convention programme, and, when I found myself honored by an invitation to prepare and read a paper for the present occasion, I regarded it as yet one more recognition in high places of the growing popularity with which this particular side of photography is regarded.

"I do not think any one who has an opportunity of seeing the description of work produced by all sorts of workers, young and old, professional and amateur, in towns or in the country, can fail to note that, whatever the result obtained, with the greater number of those who practice photography the intention and aim at least is to produce a picture rather than to demonstrate the characteristic of the process. Such a conclusion, too, is borne out by the fact that at every important exhibition the character of the works sent in necessitates by far the greater proportion of space being allotted to the perhaps not too accurately styled 'art section.'

"This might be taken as sufficient reason for a paper being read at so important a gathering as the Convention on this eminently popular pictorial aspect of photography, but that I was led to believe (though this again may be a misapprehension) that those who attend this great annual congress are chiefly those who are mainly concerned in the physical and experimental phase and those who, by their researches or their manufactures, supply the material wherewithal, and the knowledge essential for the production of the photograph of whatsoever initial motive.

"Then, yet another possible delusion of mine is that Convention papers are by no means chiefly meant for the edification of conventioners. I have been myself to the Photographic Convention before this year, but I frankly confess I never found my way to a paper reading in time, and singularly few of my fellows were able to tell me anything about the papers afterwards until they appeared in print, so I concluded that these papers are supposed to be annual contributions to the general fund of photographic knowledge and thought drawn from certain well-disposed and easily beguiled persons by a philanthropic secretary, to the end that, being gratuitously offered to the press, they may be distributed among thousands of readers throughout the world, and prevent their saying that we meet only for frivolous enjoyment.

"This idea being present with me should, whether erroneous or not, secure for me your indulgence, if what I have to say seems to appeal more to the general average of photographers than to the distinguished company in whose hearing it is read—a company which, including those who, by enjoying at the present moment the sea breezes on the marine parade, show their keen power of discriminating between good and bad, or at least between a greater and lesser good—a company largely composed of those but for whose splendid services in the fields of science and mechanics neither I nor any who practice photography with the same end in view would ever have been able to use photography at all.

"Now, if I were only required to state my case to those present here, their knowledge of contemporary photographic art (I use the term in a loose and general sense) would render it unnecessary for me to say more than this, namely, that I, in common with some others, have for long maintained that the man employing photographic means for the production of a picture is free to take whatsoever liberties he chooses, with the performance of his tools and materials, and, indeed, is justified in calling in any auxiliary means, if by so doing he can better fulfil his intention; and inasmuch as the chief means employed is photography (and no well-conditioned alternative term has been suggested), we may not hastily refuse him the use of the term photograph to describe his works, always and of course provided that he does not dishonestly produce them as examples of pure photographic process. But, bearing in mind a possible larger number of hearers or readers, I want to show reason for suggesting that some auxiliary means for picture production has always been sought for, and that such auxiliaries merely constitute the exercise of control over the formation of the photographic image; that only when such control is exercised is photography anything but the most mechanical of crafts; that the more freely such control is used and auxiliary means introduced, the more possible does it seem that in photography, at present so questionable as an art, we may one day have a perfected means of artistic expression especially adapted to the requirements of its time. But—and here I might especially appeal to those here present (and others outside whom we shall meet with anon)—those who are concerned in teaching and educating others and on whom devolves the office of conferring awards and distinctions, and thus encouraging any particular work—those on whom such responsibility falls need be placed on their guard lest, in encouraging unduly the pretty and pleasing work in which photography has been largely assisted or controlled, liberty gives place to licence and in control uncontrolled those very qualities in photography which may be usefully employed are gradually lost sight of, and good photography dies in our midst, too cold and neglected to engender a new life from its ashes.

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* *British Journal of Photography.*

"I would seek to secure the admission that personal control to the extent of employing auxiliary means is essential if photography is to become a means of pictorial or artistic expression, and so I would find a justification for such practices; then I would utter a caution lest, after recognizing the inefficiency of photography, we allow it to degenerate, and I would try to point to the weak places where enervation and degeneration may creep in and robs it of its individuality and distinctiveness as a possible artistic method of which as yet we are only witnessing the dawn.

"This matter touches very vitally, if indirectly, the interests of every one connected with photography in whatsoever capacity.

"The slowness and difficulty of manipulation of the wet collodion plate was as much a hindrance to the pictorial worker as to any other, and the chemist came to our help. The incorrect rendering of color values of the unorthochromatized plate was a defect, an inefficiency which the landscape picture-maker resented as greatly as did he who copied colored models. But that uncorrected plate was the pure and perfect photography of its day, and, in introducing colored screens and plates specially prepared to make those screens more efficacious, we did but seek to exercise a measure of control towards a given end.

"Many such instances, having reference to the modification of apparatus as well as of materials, must, in the time at my disposal, necessarily be omitted in the progressive chain of links forged by the combined requirements of the picture-maker and the skill or knowledge of the scientist until we come to consider the use of the pencil as an assistance in modifying the negative image. It was the abuse of retouching which brought it into discredit, and led the Photographic Society to constitute it a disqualification at its exhibitions, an illogical act of itself, if the mere pictorial effect of the work was its *raison-d'être*, but, as results have shown, a very laudable one in the end, for, while it may have restrained the unbridled use of the retouching pencil in incompetent hands, it may also have made the user more careful not to let the pencil overstep the duties of an auxiliary and a subordinate—in short, made him careful not to be found out in its use.

"Now, I do not think it were straining the argument too far to say that, but for the weaknesses or imperfections in the photographic process, markings, due to bubbles in the developer, pinholes, excessive hardness and transparency in the negative shadows, and so forth, would never occur. To put it more safely, were the process still further simplified and improved, it would not be possible for us to let such defects occur; but, as the process does permit of the possibility of making these mistakes, subsequent auxiliaries, such as opaque spotting, matt varnish and other tricks, become essential, and are, therefore, justifiable.

" As another example, bringing me nearer to my principal point, I would instance intensification and reduction by means of chemical solutions, and especially local intensification and local reduction. Whether we locally intensify or reduce in order to make the final results more like Nature, or in order to produce the effect our fancy dictates, we must, I think, speak of the performance as exercising deliberate control over the unaided photographic result.

" Again, is not the use of retouching, as we call it, a tacit recognition either of photography's natural inefficiency or else of the particular operator's inability to obtain what he wants by purely photographic means? Now please notice that from the particular standpoint which, on the present occasion and for the sake of my present argument I have taken, the admission of alien methods is equally justified, whether we agree that it is the natural imperfection of the process as we at present know it, or the absence of skill in the operator, because the conception and realization of a picture is an entirely personal matter, and whether the pure photographic rendering is or is not the best untouched is a matter for the individual producer to decide for himself. Because one man can accomplish a certain thing purely by recognized photographic means, it is not incumbent upon another to accomplish his end by similar means, nor even is he to be reckoned less successful or less able if he achieve the same certain thing by less purely photographic means. I must claim this individual liberty for all pictorial workers, otherwise the realization of each man's artistic aim becomes but an exhibition of comparative skill in using certain prescribed instruments and media. It is but a very proper instance of an end justifying the means.

" Remember please, that I am speaking of pictures, or what are intended as pictures, not examples of photography or of any other process. If, for the sake of example, two men set themselves the task of rendering a certain poetic phase of Nature, so as to suggest to the spectator some of the feeling which the original conditions suggested, or, in other words, if two men set themselves the task of rendering a certain phase of Nature artistically, and both elect to avail themselves of whatever advantages they deem photography to be possessed of, it matters not at what stage in the work each exerts some special control over the photographic procedure, or when he introduces some alien means, or how much of such means he calls into his service. The result obtained by each is, as a picture, judged quite apart from the means of its production, and if the artistic ability of these two workers are compared (a very wrong and foolish thing to do, they are compared and judged by the result achieved, their productions are not regarded as exhibitions of skill in wielding a certain machine.

" This is somewhat of a digression from my principal theme.

" Now, I have instanced certain common practices for modifying the simple mechanical photographic image, and have suggested that they are methods of alteration or control which few photographers would hesitate to justify, and the same might be said of such ' dodges ' and ' tricks ' as using mineral paper on the back of the negative, or printing in one portion and covering over another, and finally ' sunning down ' the finished print.

" It may be argued that with ' spotting,' ' retouching,' and intensification and reduction we have merely methods for correcting technical defects due to our own clumsiness or neglect ; and, even if this be granted, I think, whilst I do not propose to put this more fully before you, you may reflect for yourselves that the passage from such methods, the purpose of which is to remove a defect, to methods which have for their purpose the introduction of something, is one so natural that it were difficult to draw a line anywhere and say, ' This is legitimate, but that is not.'

" It has been said that those methods are legitimate which destroy or leave out such as retouching, masking out skies, etc., while those methods are not permissible which introduce some new feature. I should, however, like to point out that, if we admit ' sunning down, ' to take only one instance, the destruction of a glaring high light is equally the construction of a shadow or a lower tone. To keep a shadow from printing deeply by covering a portion with paper, we destroy an over-deep shadow, but at the same time we are creating a lighter tone which was not in our negative, and possibly was not even in Nature.

"There are those that hold—I have held and taught the same myself from insufficient thought—that we may suppress, but not add anything which our negative gives; but, as it now seems to me that, as regards the methods to which I have already made reference, the act which suppresses simultaneously introduces. Is retouching destructive or constructive, does it destroy a line or a shadow, or does it construct a lighter tone in an under-exposed or badly illuminated shadow? In like manner, if printing-in is constructive, making a darker portion, to that part which a while you cover up to let the other gain strength, it is relatively destructive. Do we 'sun' a print down to introduce shade or to destroy a high light?

"I will not continue longer in this strain, as I desire these remarks of mine to be suggestive rather than an attempt at a conclusive argument.

"I would only ask if we have any right to condemn this or that attempt at a pictorial realization of an idea or of some phase of Nature (to do which the distinctive qualities of the photograph have been employed as far as those qualities will yield to the will, or as far as the particular operator is able to apply them)—I would ask are we to condemn the result which is otherwise satisfactory because we find the photographer has sacrificed some of the cherished attributes of the process, or because we happen to know, or from expert scientific knowledge discover, he has called in the aid of some foreign means or appliance when pure photography failed him?

"I say with intention, and I repeat, 'Happen to know, or from expert knowledge discover,' because the illegitimacy of an alien method is proclaimed, and the limitation of methods of control is reached when the means by which any effect is obtained is self-evident. So soon as, whether by painting, or penciling, or masking, or any other contrivance, error in form, falsity of tone, variation in texture, or any other violation of what the educated eye looks for as a true interpretation of Nature becomes visible, then we may justly condemn the manner of its doing, but the principle which admitted it is not affected. Again, when from want of knowledge, lack of judgment, or sheer carelessness, it is, without expert scientific knowledge, apparent that brush or pencil, or other means, has been employed, and incongruity of the whole is visible, then the auxiliary has become the chief, and the governing.

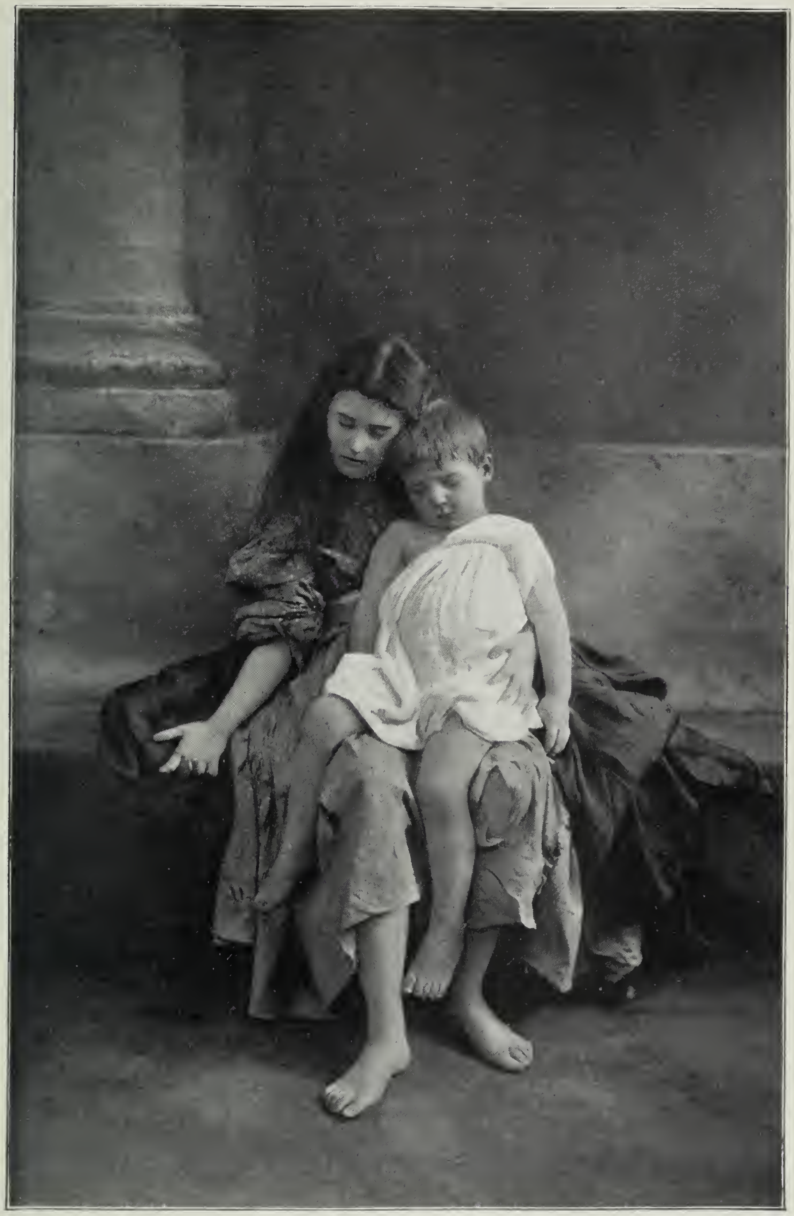
"I would emphasize this because it answers the objection to retouching when it is unintelligently used, and destroys true tonality and correct drawing. By the same it condemns painting on the print to any but a very limited extent, if indeed it needs to be used at all, because the hand work is detected, and thus the whole is not homogeneous, the means employed are self-proclaimed; also with combination printing, and even with such a simple thing as sunning down, it is bad when badly done; it is badly done when it is self-evident.

"I know the photographic expert who will speak in terms of admiration of a photographically obtained picture, but tell him it is not just exactly what its negative would yield in the hands of another and his estimation falls at once. He admired it as an example of photography. Now, I have nothing to say against such a one, if he will but let me admire it as a picture.

"If a man sees a volume by Thackeray, and looks forward to a pleasant time for reading, only to discover that some scientific treatise has been bound up in a cast-off cover of "Vanity Fair," I only blame the person who did not obliterate the old title on the back, as I should blame the person who exhibited a photograph produced after much 'faking' as a specimen of pure photography.

"Pictorial photography is fast becoming as objectionable a term as artistic or art photography, because almost as hackneyed; but, until a better word is suggested, if we accept it as meaning a serious attempt to produce a picture, using photography under control and modification, we should all perhaps be the happier, and much rending of each other's feelings be spared.

"And now, for the pacification of some, may I say that the use of paint on the



HE GIVETH HIS BELOVED SLEEP.

Copyright by G. Moses & Son, 1897.

From Genre Class Prize
Exhibit in Southern Division, P. A. of A., 1897.
Won by G. Moses & Son,
New Orleans, La.

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OF THE
UNIVERSITY OF ILLINOIS

negative or any such extreme method, so liable to be indiscreetly used, need not be resorted to, still less so on the print?

"With some considerable temerity, I ask your attention to some prints here which may roughly indicate some of the control which may be exercised merely by 'sunning down,' by 'printing in,' and 'keeping back.' I am free from claiming success for either of the finished prints, because I, knowing well their faults, show them only as examples along with direct uncontrolled prints from their respective negatives.

"It might be expected that in this connection I should make mention of such a method of printing as what is known as the gum-bichromate process, in which a power to control the final result is carried to a maximum degree. In this process, as you know, either by directing a stream of water or by painting on the partially developed print with a brush, variations in light and shade can be made to almost any extent, objectionable forms can be eliminated, and even new forms introduced; but for my own part, I do not yet feel sure whether the exercise of this power is not accompanied with too great a sacrifice of some qualities of the typical photographic image which, as yet, I am so conservative as to cling to and fear to lose. I am afraid that in this great freedom to alter the mechanically produced image, very few will succeed to do anything but shock us with strange caricatures and enormities. Some there are, and these same few, if they can paint with water on the gum and bichromate surface, could as well paint on paper with pigment in time-honored fashion, and save much messing and vexation.

"I believe that, by stopping printing, and by toning down and arresting printing where required, light alone may be made to be far more obedient than we think. I especially want to free myself from the charge of advocating 'touching up,' as we understand the term, and as we see it practiced. It is one of the things most abhorrent to me. And now, very briefly, as to why we should not be content with the automatically produced image. Why should interference and control be necessary?

"Let me ask any photographer who can also paint if he can frankly say of any pure photograph that it is exactly as he would have it had he painted it. Even supposing, by careful choice of subject, we have secured perfect composition we have then merely the grammar without fine language, merely the rhyme and metre without the poetry.

"It should not be necessary for me to here remind you that Nature is one thing and art another. A fac-simile and a picture are very different matters.

"But the strong point, the essential character of photography, is its literalness.

"This predominant quality in photography is not only not required, but is even in a measure antagonistic to an artistic rendering. I forget who it is that has described golf as the putting of little balls into little holes with instruments particularly unfitted for the purpose, but I have thought that perhaps some of us are in no better plight than the golfer—we strive to express our impressions artistically with a process particularly unfitted for our purpose.

"Art is personal, individual, and everything personal must of necessity possess emphasis. Consciously or unconsciously, every individual, in thought, or word, or act, places emphasis on that which affects him most, according to personal bias and inclination, but the lens and plate know no emphasis; all is treated equally and without preference. It is in order to break down this literalness, and to emphasize some idea, some part, some effect, that I require some method of control, and the necessity for it justifies its use.

"Let it be understood that I am not asking that every picture be of a dramatic, striking character. There are pleasing effects on the quietly lighted gray day, as well as under a riven storm cloud, and it may be that it is the very quietness and grayness which it is necessary to emphasize. I would go so far as to say that, if the first hastily made proof from my negative pleased me entirely, instead of congratulating myself on so lucky an achievement, I should at once suspect my own taste and judgment of being blinded by the pleasing arrangement of parts, the exquisite rendering of tones, or some such quality. The very fact that the photograph, however beautiful, however at first sight satisfactory, is made by a machine incapable of emphasis, incapable of feeling preferences, or of expressing personal bias, makes it, unaided, the most mechanical of crafts, and only a possible artistic means when powerfully controlled.

"A fortunate chance of lighting, a happy composition may have been taken advantage of in making the negative; but then, of these two conditions, my photograph gives me but a literal rendering, therefore my photograph must be inartistic. Its very literalness is its undoing.

"But one may say emphasis may be given by differentiation of focus and effect of light and shade accentuated by suppression of focus altogether, which course of action, by your leave, I should claim as a method of control considered by some as great a heresy as any other, while local development too often, as far as I have been able to observe, controls the would-be controller.

"I believe many of you will follow me when I say that again and again we meet with fine examples of photography in which there is every evidence of taste, judgment, skill, and we know their producers by name, and have seen from their hands equally good work year by year for many years past. They have gone as far as photography will go in the present state of knowledge, but they have not thought to call in a large amount of personal control, by which they would impart at once a personal and individual character to the result, for, because such act of control is not mechanical, it varies in power and truthfulness, and makes it possible for every work to outstrip its predecessor. That the exercise of such control requires no small degree of artistic instinct may be admitted, and accounts for the fact that some not so gifted never get far beyond the production of very fine work, such as they learned how to make after their first six months of practice.

"Ladies and gentlemen, I am painfully conscious that, in seeking to justify what has been called 'photo-faking,' I am like one who sets free a virulent germ, which may easily spread destruction and disease in photographic ranks. I would, therefore, beseech all those who have it in their power to render this germ innocuous by stimulating and encouraging good, pure photography whenever they meet with it.

"I think I am right in saying that there are some disease germs which, taken in and comfortably provided for by a good sound constitution, produce vigorous growth, but do not kill. So give us all, please, a fine, vigorous photographic constitution, but watch over and occasionally give corrective medicine to the weak whom my germ might destroy.

"Not too much germs, but just germs enough; not too much control, but just control enough, in the right hands, will do photography as a whole much good.

"I hope what I have been saying will be taken only as suggestive to those whom it may concern, and, while I think it is hardly likely any discussion will follow, I trust each speaker will first provide for himself an antagonist, and with some one prepared to answer his objections and questions.

"I have done my share, and more than my share, of speaking, and would fain leave the rest to others, albeit I would endeavor, if required to make good any imperfection of expression of which I may have been guilty with the same courtesy which you have kindly extended to me in your attentive audience."

Mr. THOMAS DALLMEYER, speaking of the new stigmatic lens *F*/6 says that all the English experts give it first place. The lens is really four lenses in one. In fact there is one focus for two purposes. Besides the size of plate for which it is scheduled, it will cover one and even two sizes larger as a "wide-angle" and then there are two other foci obtainable by using either front or back alone. This feature applies to every lens and not only the smallest size, as in the case of some other makes, and the prices will stand comparison with any.

AN IMPORTANT INVENTION FOR PRINTING ON BROMIDE PAPER.

By J. Joé.

THE introduction of an automatic exposure and developing machine for bromide paper has already done a great deal in surmounting the difficulties attendant on the proper and uniform printing of this paper. But the machines heretofore in use are intended more for the wholesale production of large numbers of photographs, and are of no actual benefit to the professional photographer, who may want only a limited quantity from one negative. It may, therefore, be of interest to professionals to hear that a new apparatus has recently been invented which admits the most exact and uniform printing on bromide of silver paper in the simplest and surest manner.

The inventor of this automatic printing apparatus is the well-known manufacturer of photographic papers, Mr. E. Buéhler, in Baden.

The apparatus in question is of extremely simple and ingenious construction, and perfect working. The printing is done by kerosene light in a specially constructed lamp. The time of exposure can be regulated by the movement of a shutter, so that negatives of any density can be printed with absolute safety. By this means, with a negative of a certain quality, the determined time of exposure is always the same as long as the shutter remains in the same position, so that a thousand pictures from the same negative can be produced with equal exposure.

To proceed with the exposure, into the part of the apparatus which represents the printing frame, insert the negative; the paper, which is on a spool, and whose width corresponds always to the length of the negative, is laid upon the latter, and the frame is then closed. A metallic ball belonging to the apparatus is now thrown into the opening of the shutter, where it is held fast until exposure commences. By pressing a lever, a trap will open, allowing the light to fall on the negative, while the ball is simultaneously set in motion. As soon as the determined time of exposure is past, the ball automatically closes the trap, and all that is then required is to move the paper to the width of the negative, thus making ready for another exposure. The pictures are developed in a long tray in such a way that a piece of the roll, comprising each time a length of six cabinet pictures, is cut off, put into the tray and developed in one piece.

Exposure and development require very little time, so that in one day the printing of a week can be done.

The tone obtained is very handsome, and the prints are plastic and strong. Any of the well-known developers are suitable.

There is no doubt that this printing apparatus will within a short time be a general favorite among photographers.

It has already been patented in some countries, and will be in market very shortly.

Translated by

Henry Dietrich.

Note.—The machine above described seems to be constructed on identically the same lines as the Hoover automatic printing machine, which has been carried in stock by our publishers for a considerable time.—Editors.

THE VANDYKE STYLE IN PORTRAITURE.[*]

By George G. Rockwood.

THE new ultra-artistic phase of photography, which I have designated the Vandyke style, is a successful effort to remove portrait photography from the realm of genre composition to the simpler forms of the old masters. There has been for years a tendency to unite or blend the art of portraiture with the genre or composition school to such an extent that accessories have more than divided the interest with the figure or subject of the picture.

Those who have been present at late conventions of photographers may recall that I have dwelt quite at length and frequently on this subject in my talks to the craft, both on the platform and in private. I am, of course, glad to see that my counsel has been accepted, and many of the younger members have improved in their work thereby. Many who last year so divided the interest between background or accessories and sitter that it was difficult to determine the intention of the artist, now give forth "no uncertain sound" or meaning.

It was not unwise at times, especially with children, to make a story-telling picture which would prove of value when the photograph had ceased to be of interest as a portrait. Many of my own pictures of this nature, such as "A Possible President," "Fine Feathers Make Fine Birds," "Sunshine and Shadow," "Two of a Kind," etc., have run into editions of a half million copies, and I do not propose by any means to lose interest in this branch of our business. But in treating adults, and especially representative men and women, we have resumed efforts in the line which I began many years ago in the days of our distinguished French artist coadjutor—M. Adam Salomon, of Paris.

Since then travel, study and the development of art culture and training, enable a larger number to appreciate the ultra-artistic efforts now possible in photography. In a word, this treatment means to not only subordinate everything to the portrait, but to go a step farther and subordinate everything in a portrait to the head or likeness alone! Rembrandt, when he painted a portrait, used a skylight less than 2 feet square. In this beam of light he placed his sitters, and, as may well be understood, nothing could be seen but the head in this manner illuminated. There was nothing to divide the interest or distract attention from the portrait. The work of no other master has ever equalled his portraits.

In this line I have for many years worked for artists and connoisseurs, until now there is a positive demand and appreciation of this new-old-style of portraiture. By this manner is developed the strong personality, character, and beauty of the human head, and but in a few cases have I failed to find it complimentary.

The most persistent stickler for the ultra-artistic effects in portraiture has been Mr. James Inglis, whose work in this line fully twenty years ago drew me from New York to Montreal on a special trip to see, to study, and to learn. That this will be the dominating school of the leaders in our art is no longer in doubt, as the last Celoron Convention demonstrates, and is in evidence in the large number of such photographs being used in the illustrated papers.

A very practical outcome will be the doubling and trebling of prices and the maintaining of rates.

Mention of the Convention would not be complete without a word of tribute to the untiring energy and courtesy of Mr. G. W. Smith, the agent of the Trunk Line Association, whose work during the last two days of the Convention in straightening out members' certificates for return tickets was by no means an enviable task.

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[*] *Wilson's Photographic Magazine, August, 1897.*

"SIMPLE BUT USEFUL"—A NOTE FOR TOURISTS.

By Fred. W. Pilditch.*

THERE are but few who have not experienced the difficulty, while on tour, of developing negatives away from home, or of properly registering the exposed plates so that they may be ultimately associated with the entries made in the note-book kept for the purpose, when the development is destined to be performed upon the return from touring. How many there are also who find that the packing has upset their most approved arrangement, and a confusion of plates has caused the development to be carried on without the intended systematic course being followed. This results in plates being put in unsuitable developers and loss of perhaps valuable negatives through misadventure or better, through misdevelopment.

To remedy this I venture to offer my plan, which is as follows:

Prior to a tour I get a supply of thin paper envelopes—I believe they are to be obtained from Messrs. Lund, Humphries & Co., or other dealers, at about 6 pence per hundred. Each morning I put in my pocket just as many envelopes as I have plates to expose, and after my first exposure I write date and other necessary particulars, with dispositions of light and shade, subject, etc., on an envelope, which I number "No. 1." This process is repeated until my last plate is used, and then upon my envelopes I have a record of my day's work, with each envelope titled respectively to the exposures made.

When emptying the dark slides I place them in consecutive order. say "1 to 12," with my paper bags also in that order, viz., "1 to 12." Thus, plate "No. 1" is put into envelope "No. 1," and no confusion can possibly occur, and no fumbling through a note book for particulars is necessary in the hazy light of the darkroom lamp when time for development arrives.

Caution.—Do not let film side of plate lie against the joining of the paper bag, or you may wonder what causes a mark from the top to the bottom of your ultimate negative.

THE INTERNATIONAL ANNUAL FOR 1898.

THE tenth volume of "Anthony's International Annual" is now in preparation and fast nearing completion, and of it may be said that it will outclass any previous volume of the series. With the rapid progress in photographic and printing methods and the improvement in printing plates, the artistic and technical features are expected to be worthy the tenth volume of an important technical publication, such as the "Annual" claims to be. The contributed articles are numerous and extremely interesting, and cover in their range a very wide field of research. They are the expressions of the leading authorities of the day, and many of them are embellished with illustrations of their own work and methods of procedure.

The subjects for the full-page illustrations have been selected with great care and will comprise the work of many of the best amateurs of this country and Europe, and a number of the prize winners in the recent Photographers' Convention at Celoron. The plates from which they will be printed will be made by the best engravers in the country, and several fine specimens of three color printing will serve to brighten the pages.

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* *The Amateur Photographer.*

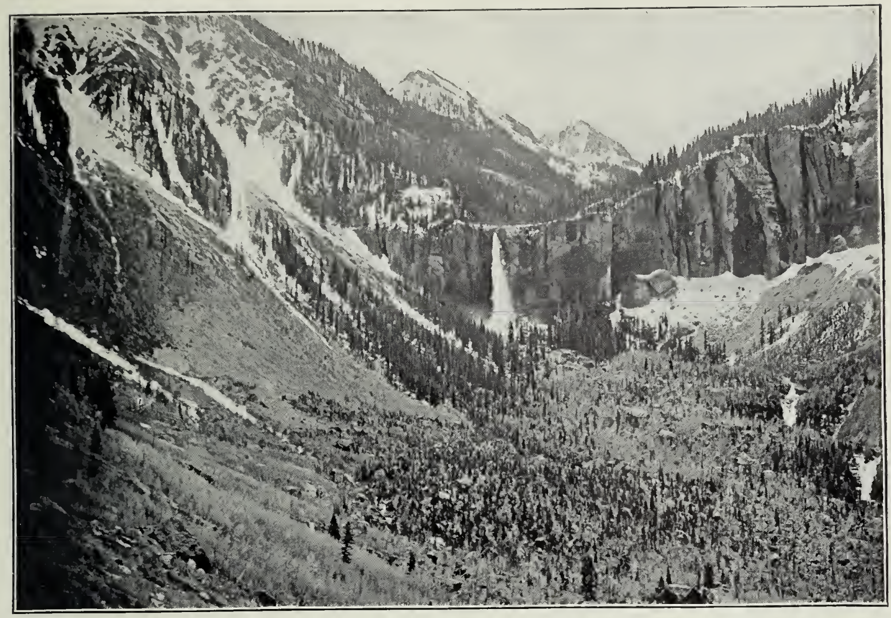
The following partial list of contributors will serve to show what may be expected in the way of reading matter :

Signor R. Aspa, R. E. M. Bain, A. Bogardus, R. A. R. Bennett, Ernest Beringer, F. G. Benson, J. Boothroyd, C. A. Bothamley, H. M. Beeles, R. H. Bow, Frederick T. Bennett, Joseph Cottier, W. Cooper, H. Crisp, J. D. Cotes-Preedy, C. H. Cox, Mrs. Emily Culverhouse, Joseph Chamberlain, Henry Erle Cooper, E. A. Darling, F. H. Davies, P. C. Duchochois, F. G. Elliott, Peter Eland, Professor Arthur H. Elliott, Charles E. Fairman, J. M. Forbes, "Florence," H .D. Farquhar, A. D. Guthrie, Charles Gravier, C. M. Giles, Silas Gurney, J. Gaedicke, H. W. Hales, E. K. Hough, G. L. Hurd, W. J. Hickmott, W. A. Hyslop, Martin J. Harding, Romeyn Hitchcock, J. H. Harvey, Eli Hirst, F. J. Harrison, H. Hands, J. Joé, I. C. Johnson, Ottomar Jarecki, S. E. Kelf, E. S. Kibbe, L. V. Kupper, Commandant C. V. Legros, Rev. F. C. Lambert, Professor Alexander Lainer, Max Levy, E. H. Lyon, Dr. O. G. Mason, Manley Miles, G. H. Niewenglowski, M. T. O'Connell, Milton B. Punnett, Rev. T. Perkins, F. W. Pilditch, Robert M. Reeves, Henry F. Raess, F. C. de Sumichrast, Harold Serrell, J. Reuel Smith, Victor Schumann, H. W. Studley, Adelaide Skeel, James Shepard, Henry W. Smith, Walter Sprange, C. A. Snow, F. B. Sutton, Joseph F. Smith, M. Toch, W. W. Thompstone, C. B. Talbot, Edward Valenta, H. H. Williams, E. E. Weatherby, R. M. Worden, Mrs. Catherine Weed Ward, Alfred Watkins, W. H. Walmsley, C. N. Whittaker, and others whose manuscript is promised and in preparation, but not received as yet.

* * *

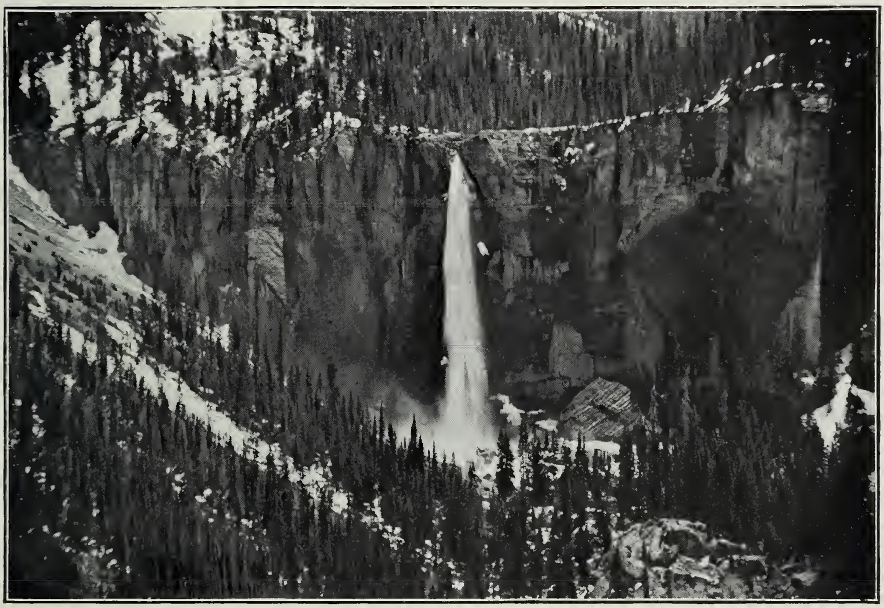
The Third Annual Convention of the Northwestern Photographers' Association has just been held in Saint Paul, and was the best ever held by far—the attendance was large, and the exhibits were very extensive and of high quality. Several of the prize exhibits from the late National Convention were hung, and proved of great interest and value. The School of Photography was a feature of this convention, as it was at Celoron, and lectures and criticisms of pictures by C. A. Zimmerman, of Saint Paul, and Professor Griffith, of Detroit, also formed part of the programme of the Convention. The officers of the Association for the coming year are :

President, J. A. Brush, Minneapolis.
First Vice-President, M. F. Heinzelman, Owatonna.
Second Vice-President, J. R. Snow, Mankato.
Secretary, P. J. Nelson, Anoka.
Treasurer, A. H. Opsahl, Minneapolis.
Vice-President for Wisconsin, W. A. Pryor, La Crosse.
Vice-President for Iowa, M. W. Starks, Sioux City.
Vice-President for South Dakota, L. V. Bean, Sioux Falls.
Vice-President for North Dakota, A. A. Bentley, Fargo.



BRIDAL VEIL FALLS, COLORADO.

From a distance of three-quarters of a mile with Dallmeyer R. R. Lens.



BRIDAL VEIL FALLS, COLORADO.

From same point as above with Tele-Photo Lens.

CONVENTION ECHOES.

A FEATURE of the Convention was that those from the various parts of the country came in organized parties, and many wore distinctive dress or emblems, the western contingent appearing in caps that were not to be mistaken. Philadelphia and its vicinity was to be identified by the white duck trousers and black coats of its representatives. Large parties came from each of these points, and Boston was also well represented. Mr. Charles R. Stevens, of the Chicago Photo Stock Company, had the western delegation in charge, and an entire special train was devoted to their accommodation. The Boston party came under the guidance of Mr. J. W. Williams, and arrived Monday night *via* Niagara Falls. New York and vicinity sent thirty-eight by way of the Erie road under the auspices of the BULLETIN, and by Tuesday morning, when the business of the Association began, a goodly number were present from all parts of the country.

* * *

THE exhibits of apparatus and stock were held in the main hall, the same as last year, and the general arrangement was similar to that then in use. A line of large spaces extended around the entire circumference of the hall, with a collection of spaces in the center of the hall, separated from the former by a wide aisle, in which were located the desks of the several dealers. At the right of the hall, on entering, was a small room occupied by the M. A. Seed Dry Plate Company, and in the main hall, next the door, was the display of Lafayette W. Seavy, backgrounds, accessories, etc. Next adjoining came the Sprague & Hathaway Company, of Somerville, Mass., with an extensive exhibit of crayon enlargements, colored transparencies, frames, mouldings, etc. The A. M. Collins Manufacturing Company, of Philadelphia, came next in order with a large display of mounts and cards. The firm of our publishers, E. & H. T. Anthony & Company, occupied the next space, and showed a very large line of studio cameras, stands, vignetters, burnishers, etc. This exhibit was, by far, the most complete of any of the stock houses, and great interest was manifested in some of the new features shown. The Decorative Plant Company, of New York, occupied the space next the extrance to the annex, and E. F. Foley & Company, of Jamestown, had a display of frames and medallion work adjoining them. The Lovell Dry Plate Company occupied a very tastefully arranged booth next to the stage, and showed a large collection of work from Climax plates. The Buffalo Argentic Paper Company were next in order, with an excellent collection of prints on Buffalo argentic paper. Wuestner's Eagle Dry Plate Company were next in order, adjoining whose exhibit was that of the Saunders-Gross Company, of Cleveland, with a large collection of plain enlargements on glossy bromide paper of a high standard. W. S. Dunn & Company, of New York, came next in order with an exhibit of gold frames, followed by D. F. Hurlburt, of St. Louis, next to whom were Rough & Caldwell, of New York, with a large and excellent assortment of backgrounds. Bausch & Lomb Optical Company, of Rochester, were next in order, followed by Packard Brothers, of Roslindale, and E. A. Gilbert, of Jamestown. The Globe Scenic Company, of Chicago, occupied the space next in order, adjoining which was that of Carl Ernst & Company, of Berlin and New York. J. H. Smith & Company, of Chicago, occupied the next space, and the H. Lieber Company, of Indianapolis, the one adjoining. The Cramer Dry Plate Works occupied the room next the entrance at this end of the hall, and immediately adjoining the main aisle. The Photo Materials Company, of Rochester, N. Y., occupied a large and attractive booth in the center of the hall, and on their right the Naef Photo Apparatus Company, of Cincinnati, O., were located. The Hetherington Scenic Studio, of Chicago, came next, and the Badgley & Hoerter Company, of Louisville, Ky., adjoined them. Farther down the hall, and facing the stage, was the Hammer Dry Plate Company and the Toledo Moulding Company, while the Reichenbach, Morey & Will Company, of Rochester, came next. G. Gennert, of New York, occupied space on the left of the main aisle, and on the same side of the hall were Allen Brothers, of Detroit; H. A. Hyatt, of St. Louis; Chicago Photo Stock Company, Edwin Davis, and Henry Levin, of Chicago.

The following dealers occupied desk room: W. P. Buchanan, of Philadelphia; George R. Angell, of Detroit; George Murphy, of New York; S. Trier & Sons, of New York; Hugh Morrison & Sons, of Pittsburgh; Thomas H. McCollin & Co., of Philadelphia; Blackmore Photo Art Supply Company, Newark, N. J.; National Photo Paper Company, Springfield, Mass.; The Cummins Photo Stock Company, Baltimore, Md.; E. B. Meyrowitz, of New York and Germany; Corraine & Sligo, of Philadelphia; Goerz Lenses, of New York; Wilson-Hood-Cheney Company, of Philadelphia; Scranton Photo Supply Company, Scranton, Pa.; Sweet, Wallach & Company, of Chicago; Scovill & Adams Company, of New York; David Tucker, of Buffalo; Photographers' Association of Ohio; Professional Photographer and St. Louis and Canadian Photographer.

* * *

It made no difference where you were, at Greenhurst, at Jamestown, on the lake, in any or all of the large buildings at Celoron, day or night, one figure was always conspicuous, always neat, and one upon whose features were stamped that pleasing expression that bids the stranger welcome and makes us all feel at ease. Thrifty Charlie Abbott seemed to be everywhere at all times, taking care of the interests of others as well as his own, conferring favors continually, working untiringly for the success of the Convention and the comfort of the visitors. It is useless to try and tell of the responsibilities assumed by this one man, but how appropriate to him this—*veni, vidi, vici.—Supplement to the News Monger.*

* * *

All copy for October issue must be in our hands by September 15th.

LAY COMPETITIONS.[*]

IN nothing perhaps, at the present time, is the popularity of photography more apparent than in the way the lay press has taken hold of it to increase its popularity and add to its subscription list; but whether the way in which it has taken hold of it is an unmixed blessing is open to question.

We do not now refer to the employment of photography in the production of illustrations either for line or half-tone engravings, as that work is generally given to more or less well-trained artists, and has exercised and is exercising on those amateurs who are also students an influence for good; but to what might almost be called the craze for photographic competition, in which awards, often of trifling value, are given for the so-called best pictures, and what is of more value, to the more vain among the exhibitors at least their reproduction in the pages of the papers.

That such exhibitions and competitions are necessarily more injurious or less beneficial than those held under the auspices of the various camera clubs and photographic societies, we do not believe; and to the latter are to be attributed to a large extent at least, the almost universally perfect technique and the progress artistically of the photography of the present.

Wherein, then, do what we have called "lay competitions" differ, so as to include elements of danger, from those organized by the ordinary photographic associations? It is in the judges and the judging, as is abundantly evident on an examination of the pictures to which awards have been given.

In the early days of the art, when manipulation was attended with difficulties and good technique hard to get, little beyond a simple reproduction was expected or looked for, and photographers, who alone knew what had been overcome, were naturally the best judges. But photography is no longer a mystery, the knowledge of which is confined to a few, and its methods have been so simplified that good technique is the rule rather than the exception; and, indeed, in the opinion of some whose opinions are worthy of attention, is being carried to such an extent as to be a hindrance rather than a help to artistic work.

When photography is employed to produce pictures, it should be regarded as merely a means to an end, the end being artistic work, and in photographic competitions the end should be considered altogether apart from the means. It will be evident, therefore, that while the judges may be photographers, they must be artists, and the two names are not by any means synonymous. If photographs are to be judged, not as photographs, but as pictures, it is clear that the essential qualification of the judges is a knowledge of art, and the trained artist is more likely than the average photographer to have that. As, however, where there are two pictures of equal pictorial merit, the preference may be given to the one having the better technique, it might be well, in the absence of a knowledge of photography on the part of the judges, to have acting with them a photographer, as one of them, if there are three or more, but if fewer, then only as an assessor or adviser.

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[*] *The American Amateur Photographer.*

That photographers and not artists are the judges at most of the lay competitions is abundantly evident from the prize pictures published in the pages of the papers by which they are organized, and we have ample evidence of the evil resulting from mistaken awards in the expressions of dissatisfaction with some of the criticisms in "Our Portfolio" on the ground that the pictures were exactly on the lines of certain prize pictures in such and such a paper.

In this way competitions that might have a powerful educational influence become a drag on artistic progress, and, through the influence of judges ignorant of the principles of true art, aspiring amateurs are encouraged to pass base metal instead of, as they would be by judges of true artistic instinct, led to the production of the pure gold.

THE OUTLOOK FOR PROCESS WORKERS.

AN article under the above title by Mr. James Blake, in the *Process Photogram and Illustrator* for July, outlining the condition of affairs in the process field in England, seems to be worthy of study by the craft in this country.

Mr. Blake says:

"Never, since photo-mechanical work emerged from its experimental stages have there been so many signs of changing methods and reorganization as at the present time. It is perhaps well, therefore, to take stock of the situation, with a view to taking such advantage as may be of the changes as they occur. In some cases a resolute, square facing of the facts is sadly needed, for during the recent run of price-cutting some of the firms must have been simply 'going it blind' to such an extent that nothing but a sharp pull up can avert disaster. It is surely time for plain speaking on this point, and for fairly looking into every phase of the question. We know that few half-tone houses were making any very enormous net profits before the drop commenced; the drop in price is an undoubted fact, and the question follows—what has occurred to compensate for the decrease? On going over the balance sheet for the past half-year as a guide to the future we may as well isolate the 'decrease in prices—%'—against which we have to place

"? Increase of turn-over
"? Decrease in cost of production,

and see on which side the balance lies. Or suppose we do not produce a balance-sheet (and some houses do not), is it not the more necessary to fairly face matters. If in 1895, with higher prices, and a given turn-over we felt that the business had not done much more than keep level; can 1896, with tremendously dropped prices and but slightly increased turn-over have even paid expenses? And what about 1897, if we have dropped prices lower still?

" Can you see a way out of it? If not, is it not better to clear out now, while the business is solvent and may possibly be sold as a going concern than to wait, and wait, and wait, with that sickening 'hope' that has no reasonable basis, until there is a forced realization in bankruptcy?

" Truly the price-cutting is a serious issue, and one that we cannot afford to ignore.

" If you feel that the case is not hopeless, you must, if you are a half-tone house, and are not one of half-a-dozen of the most successful, be looking about for some radical means of forcing an improvement. So far as I can see, plain half-tone work has come to a dividing of the ways, and the craft must fairly rapidly separate into two sections, viz.:

" 1. Wholesale manufacturers of half-tones.

" 2. Half-tone artists.

" Of the former there will probably be not more than four or half-a-dozen firms in existence at the end of a few years. They will depend entirely upon excellent business management, their capital and turn-over will be enormous, their prices will be about those of the present day cheap line zinco, and the quality of their work will be an even, but not very high, level. They will take the whole of the cheap, urgent and contract work, and it will be utterly useless for a firm with small capital to attempt to compete with them.

" Of the half-tone artists there will probably be very many firms, comparatively small, employing from one to six cameras, and obtaining prices which will average, I think, about 9 pence to 1 shilling per square inch. They will employ, throughout, men of higher average ability than we find in the present shops, and will give skilled attention to the requirements of each individual original in a way that the wholesale manufacturers cannot attempt to do. Probably some of these houses will develop specialties and become known in the trade for their excellent vignetting, for their hand or their machine engraving, or possibly for their special ability with certain classes of subjects.

" I would urge upon every half-tone house a careful consideration of which class it will aim to join. And it is well to remember that a firm doing artist's work cannot hope to compete with the wholesale manufacturer's prices. Moreover, it will be useless to waste a traveler's time attempting to secure the orders of those who are content with the wholesale manufacturer's quality if you are not prepared to meet his prices.

" No doubt the better class workers will continue to be more or less baffled—as they are present—by the badness of British printing, and there are present indications of a time when we shall have

EVERY BLOCK-MAKER A PRINTER.

" The three-color people have felt this difficulty most keenly, and by the fact that the immense majority of British printers will not attempt to use trichromic blocks —or if they do attempt it will only ruin the result—have been forced, in sheer self-defence, to become their own printers. This point seems to me to be most important. It simply means that trichromic printing, though still in its infancy in this country, does fill a most distinct want, and does mark a most important step in technical and commercial progress. The weavers of carpets and shawls, the printers of wall-papers and linoleums, the workers in metal and marble, the hatters and glovers, the bootmakers, all have ample use for good color-prints at reasonable prices; but they are all used to buying their catalogues and price-lists from their printer. It is not their business to buy three-color blocks and teach and force the printer to use them; and while the average printer maintains his present attitude, this great field for color-work can only be opened up by firms who are prepared to supply the printed matter, just as the photographer supplies finished prints, and would not think of offering his customers the negatives from which prints can be made. The traveler for a three-color house is the man who has already a color-print connection, who has been a chromo-lithographer's man. In such hands, and with such arrangements, the commercial applications of the process should extend fairly rapidly. Failing some such arrangements the workers must be content to supply a very limited circle—one or two printers and one or two publishers who use colored plates somewhat largely. But to confine the business to these lines will not long be possible; and, even at the present moment, a great amount of capital is being introduced into the combined business of block-maker and printer. This is the competition the craft has to face in the very near future.

"In half-tone the same tendency is somewhat apparent. In spite of the immense amount of half-tone printing, the British printers who can be relied upon to produce really fine half-tone work may still be counted on the fingers of one hand. The natural result of such comparative apathy is that more than one firm, aiming at the highest possible quality of half-tone work, has laid down printing plant and is prepared to undertake any special work requiring excellence of printing, I think that specialization on these lines will spread much further than it has done at present, and as it does so the pressure of competition will be to that extent removed.

"The future of collotype is very difficult to forecast. So far as I can learn, from the inquiries I am able to make in the trade, the English printers are slowly but surely obtaining the bulk of the work that has for some time gone to the Continent. Still, the outlook, to me, seems very doubtful, in the face of what we have heard lately about machine-printed photogravure. I may be wrong, but it seems to me that both collotype and ordinary photogravure are very seriously threatened. The machine-printed gravures are very beautiful, and in large sizes I think they must supplant hand-printed photogravure for everything except small editions and the most artistic collectors. In small sizes the half-tone grain may appear a disadvantage at the first, although it is more mashed than in an ordinary half-tone print, and even the ordinary half-tone, now-a-days, is hardly offensively "screeny." Whether this machine-printed gravure will affect collotype or not remains to be seen, but I think it can hardly be doubted.

"In fact it seems to me that machine-printed photogravure is the most interesting and important object in the present 'outlook for process workers.'"

OUR ILLUSTRATIONS.

THE frontispiece in the present number is from the collection exhibited by Rösch, of St. Louis, at the recent Convention at Celoron, to which was awarded the Grand Portrait Prize, and is a beautiful example of portrait work in its most artistic phase. The study of this picture, together with that of the genre subject, facing page 284, which is from the genre prize collection of G. Moses & Son, of New Orleans, and a careful comparison of the markings made by the judges, tabulated in this number, will be of great value and interest to the fraternity. The BULLETIN considers itself particularly fortunate in having such excellent examples of work to present to its readers, and subsequent editions will be illustrated with further examples of the prize-winning exhibits, all of which will bear study and comparison with the table of judges' awards.

◆

THE decoration on page 280 is from the studio of Newman, of New York, and reflects credit upon the originator of the composition.

◆

THE two illustrations on page 293 show with wonderful clearness the advantages to be derived from the use of the tele-photo lens for distant views. These negatives were both made from the same point of view, of scenery distant about three-quarters of a mile, and are the production of Mr. A. M. Wrench, of Telluride, Colo.

The Eighth Annual Meeting and Field-Day Outing of the New England Lantern-Slide Exchange was held at Marblehead, Mass., June 17, 1897, by invitation of the Mystic Camera Club, the occasion being the annual outing of that Club. There were seven clubs in the Exchange last season, as follows: Providence, Valley, New Haven, Pittsfield, Albany, Rutland and Mystic.

Mr. C. G. Tompkins was elected Chairman, and Mr. Will C. Eddy, Secretary, for the ensuing year.

* * *

The Bausch and Lomb Optical Company celebrate the twelfth year of their production of photographic lenses by the extension of their photographic lens department, the new addition covering 8,000 feet of floor space and providing facilities which the rapid increase in the demand for their lenses has made imperative.

* * *

OUR
Reviewer.
School of Practical Process Engraving

By far the most important and technically perfect annual that has reached us this year is the "Process Year Book" for 1897, Vol. III, published by Penrose & Co., London, and conducted by Wm. Gamble, the editor of "Process Work," and printed by Percy Lund, Humphries & Co., Ltd. This volume is of uniform size with its predecessors, measuring about 7 x 10 inches, and printed throughout on a fine, heavy-weight, surfaced paper of excellent quality and texture. It is sumptuously illustrated with a photogravure frontispiece, a number of capital color plates, and many half-tone plates of unusually good style and finish. The composition and press work are excellent, and the field covered by the text articles is very inclusive. It is a work that does great credit to its editor, publishers and printers as well, and in this feature is a notable advance on many foreign works of its kind. This book may be obtained of our publishers. Price, $1.

"Artistic Lighting," by James Inglis, published by F. Dundas Todd, is a very attractive volume of 48 pages in which the subject of lighting in portrait work is treated by the author in a very masterly manner. The book is profusely illustrated and contains also a paper by the publisher treating on "At-home portraiture by daylight and flashlight." Price, $1; from our publishers.

We have received from the English publishers, Hazel, Watson & Viney, a copy of "Platinotype Printing," by A. Horsley Hinton, which is an admirable handbook for the beginner, being published as No. 11 of their series. Price, 50 cents.

An excellent trade catalogue recently came to us from Chas Lawrence, Wichita, Kan., in which is listed a large assortment of photographic goods which are displayed with taste and effect. The catalogue is an evidence of a well-ordered establishment.

"The Camera," the official organ of the Columbia Photographic Society of Philadelphia, is a monthly publication of 8 pages devoted to the business and interests of the club, and shows a deal of push and enthusiasm in the club for which it speaks.

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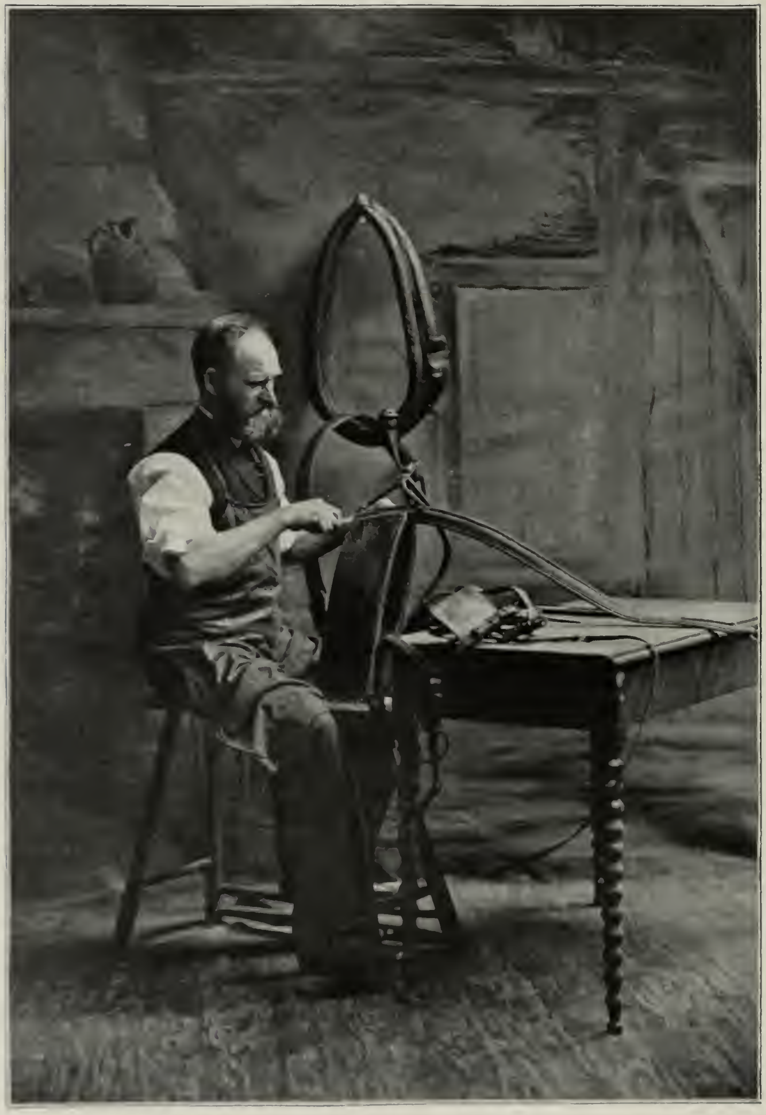

THE HARNESS-MAKER.

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FROM GENRE CLASS PRIZE
EXHIBIT IN EASTERN DIVISION P. A. OF A., 1897.

ANTHONY'S

Photographic Bulletin.

EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.

W. I. SCANDLIN.

Vol. XXVIII. OCTOBER, 1897. No. 10.

SEASONABLE SUGGESTIONS.

WITH the approach of the cooler evenings and shorter number of working hours of daylight, together with the change that gradually comes with the falling leaves, one naturally turns to indoor occupations to take the place of the more or less indolent activities of the warmer season, and many fields lie open to the worker in photography, be he professional or amateur, in which he may disport himself to his material advantage in the advancement of his business, if the former, or to his profit and pleasure and the enjoyment of his friends, if of the latter class. There is a wide difference in the motives and impulses that actuate the worker toward the attainment of these two ends, but there is one path that each must tread to reach his goal, if he would honestly say at the end of the winter season, "I have made distinct progress in my work." This path is to be found in the photographic literature of the day and the best works of the past in fields more or less outside of photography. In these days of progress one must read, and that carefully, for it is certain that at no time in the history of printing has the saying been more true than now, that "of the making of many books there is no end." But one does not wish, nor would it be well to try, to read all that is put out in photographic literature any more than he would partake of all the courses so appetizingly set forth on the elaborate hotel menu. Judgment and discrimination are invaluable in either case if one would avoid becoming satiated and cloyed with the good things set before him. As is the case in the material menu, so it is with the mental, and each should choose for himself such a course of nourishment as will furnish him with the proper material for the work he has at hand or in contemplation. The professional man in the field of photography may become more of a leader in his profession only by keeping posted and in touch

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with what his brother photographers are doing, and how. This he can best do by a careful study of such examples of their work as are from time to time published as representing their best efforts. He should also know of the new devices and conveniences for extending the facilities of his own gallery; and, above all, he must constantly endeavor to broaden his horizon in order to see, and instantly to grasp, any suggestion which may come from an unconscious pose or sudden, fleeting expression in the subject under his eye. The man who has the technical operations of his gallery at command is a good man, but he who can add to this a familiar acquaintance with the best of history, poetry and fiction, is a better one. From these fields may be culled boundless opportunity for advancement in pure studio work, and the photographer who neglects the opportunity to become conversant with the best works of the best authors neglects an important adjunct of his business.

Study of the principles of art, as applied to lighting, composition and grouping is, of course, a necessity, and numerous works on these subjects are at the hand of him who desires to avail himself of them.

For the amateur the field is even wider, and he who is wise will lay out a course of study for each coming winter season which shall aim to take in only a portion of that field. The photographic magazines and journals of the day are full of valuable hints and suggestions bearing upon these different fields. Handbooks are readily obtainable which will give the key to the situation, and a judicious combination of these, with the requisite amount of practical experience in the working of the process at hand, should go to fill up a certain stated portion of the time which the enthusiastic amateur intends to devote to the pursuit of his subject.

Our advice is, do not try to cover the whole field in one short evening or one short season, but study the ground carefully, and select that step or series of steps which seems best to fit the leisure or pleasure of the operator, and thoroughly master it, detail by detail. In this way only can the success be looked for which is the ultimate hope of all who are earnest and conscientious in their work. In view of what has been accomplished in the past few years by amateurs in the production of work, which is full of promise, we believe it is not too much to say that such a careful course of study and reading as is suggested above will be of great value to the craft, and will do much towards raising still higher the standard of photography in this country.

JOHN A. RANDALL, writing in the *British Journal of Photography*, has given some interesting figures comparative of the English prices of chemicals at various decades between 1851 and 1896. He shows that collodion has decreased 50 per cent.; acetic acid, 83 per cent.; potassium cyanide, 75 per cent.; ammonia, 66 per cent.; glass plates, 60 per cent. On the other hand rent has increased 80 per cent., and rates and taxes 30 per cent.

Items of Interest

MR. D. L. ELMENDORF, who has been associated during the summer months with Professor Bickmore in a trip through the West for a collection of views for use before the schools of New York State, has just returned from his trip with a very large collection of negatives which have not yet been developed, but those who know Mr. Elmendorf's work may form a very accurate idea of the proportion of success which will result. We have reason to believe that the views obtained this year by Mr. Elmendorf will be of unusual interest and value from an educational standpoint.

◆

It is said that Russian photographers have a peculiar method of advertising those of their patrons who fail to pay their bills, their custom being to display the portraits of the delinquents at the entrance to their studios, but in an inverted position.

This would be apt in this country to cause comment, if it did not prove more efficacious in the way of liquidation.

◆

Items have appeared in several of the daily papers lately to the effect that the first person photographed was Miss Elizabeth Draper, and that the portrait was made by her brother, Professor J. Draper, of the University of New York. This picture was sent to Sir William Herschel, who was greatly pleased with the results obtained and who sent to Professor Draper a letter of acknowledgment and congratulation, which is still in the archives of the Draper family.

It would be interesting to know if any other claim is forthcoming for priority in this direction.

◆

Regarding the item above, with reference to the first photograph being claimed by the Draper family for their ancestor, an item appears in a daily paper, claiming that a photographic portrait of King Louis Philippe has been sent to the Carnavelet museum of Paris by a collector in whose possession it had remained for many years. This portrait dates from 1840 and is supposed to have been done either by Daguerre himself or by some member of the royal family to whom he had communicated his process. It will be of considerable interest to have the priority of claim definitely settled before the records of the past become more difficult of verification than they are at the present time.

The statement is made as being not generally known that M. Ducos du Hauron, who has done so much in the development and advancement of three-color work, is living in Paris under very straightened circumstances and that a subscription list has been opened for him through the *Photo-Revue*.

◆

We note that Mr. John E. Dumont, of the Rochester Arts and Craft Society, so well known in photographic circles, has been awarded a silver medal for artistic excellence of one of his prints exhibited at the Paris Exposition held in July last.

◆

The Art Department of the Bridgeport Public Library and Reading Room, Bridgeport, Conn., announce the Twentieth Free Art Exhibition of the Public Library, to take place October 16th to November 25th, and that it will include a special section for the display of photographs taken by cyclists awheel. Contributions of photographs framed or simply mounted are asked from all wheelmen. Exhibits will be returned promptly without expense to exhibitor. Address, W. J. Hills, Superintendent.

◆

It will be a matter of considerable surprise to many readers of the Bulletin to learn that the J. C. Somerville Photo Supply Co., of St. Louis, Mo., has been transferred to Mr. H. A. Hyatt, of that city, who will continue the business in his own name. Mr. Somerville has been at the head of this company for the past twenty-one years and has become a landmark in photographic fields in the Southwest. The Bulletin would express its regret at being compelled to sever connections with one who has so long been associated with the photographic fraternity, and would express its best hope for his successor in the business, in which it doubts not all who know the two gentlemen will join.

◆

It is not a matter of surprise to learn, through the *Pall Mall Gazette*, that M. Gallain, the Director-General of Customs at Paris, has decided that passenger baggage shall not be submitted to examination by the X rays for the present.

Is it possible that the method is not turning out to be such a brilliant success as was predicted for it, or is it really because of the reason given by the Director-General, that public sentiment in France is opposed to gratifying the morbid curiosity of the customs inspectors?

◆

The recent investigations of W. J. Russell, F. R. S., into the action of certain metals and compounds on sensitive plates seem to have opened a wide field of research and experiment, and will, in a large measure, account for many of the strange markings, ghosts, fogged plates and similar annoyances which have so long baffled the most experienced workers.

It will be well, on the recurrence of any of these phenomena, to investigate the conditions, in view of the light which Mr. Russell's investigations have brought to bear on the question.

CONVENTIONS, PAST AND TO COME.

THE Convention of the Photographers' Association of Missouri at Pertle Springs, which closed on August 13th, was very successful in every way. The next meeting will be held at Chillicothe. The following officers were elected: President, A. S. Robertson, St. Louis; First Vice-President, J. G. Stone, Warrensburg; Second Vice-President, F. N. Tuby, Boonville; Treasurer, L. N. Reiger, Brunswick; Secretary, Al. Dunlap, Brunswick.

The Grand Prize was awarded J. E. & A. J. Rösch, of St. Louis, who, it will be remembered, captured the grand portrait prize at the National Convention at Celoron. First prizes in the various classes were awarded as follows:

Class A.—First prize, gold medal—G. W. Curtiss, Kansas City.
Class B.—First prize, gold medal—D. P. Thomson, Kansas City.
Class C.—First prize, gold medal—H. Holborn, St. Louis.
Class D.—First prize, gold medal—J. L. Douglass, Columbia.
Class E.—First prize, gold medal—T. Stout, Unionville, Mo.
Class F.—First prize, silver medal—Lillie, Kansas City.
Class G.—First prize, silver medal—H. W. Ware, St. Louis.

◆

THE Photographers' Association of Canada closed its Fourteenth Annual Convention on August 22d, after an extremely valuable session. The following officers were elected: President, Mr. Bert Park, Toronto; First Vice-President, Mr. Frank Jackson, Barrie; Second Vice-President, Mr. Still, Orangeville; Secretary, Mr. Thomas Hastings, London; Treasurer, Mr. J. G. Ramsey, Toronto. Toronto and London were candidates for next year's convention, the former being the choice. President Hopkins, of St. Thomas, was the recipient from the Association of a handsome gold-mounted pipe, as a recognition of his services during the year. The highest award for excellence went to Mr. J. Frank Jackson, of Barrie, Ont.

◆

THE Photographers' Association of Ohio held the closing session of its 1897 Convention on September 2d, at Columbus, O. Great interest has been manifest among its members, and strong efforts were put forth to ensure a successful convention, and they culminated in making it a great success. Lectures and criticisms were listened to, and the exhibit of pictures was of good size and quality.

Special prizes were awarded as follows:

First, C. M. Hayes, of Detroit; second, J. B. Schriever, of Emporium, Pa.

Special Amateur Class.—Clarence White, of Newark, first; Kate L. Matthews, of Pewee Valley, Ky., second; John Wehrley, of Newark, third.

The grand prize was awarded to B. A. Brigden, of Cleveland.

The next convention will be held in Columbus with the following gentlemen occupying office: Mr. L. A. Dozer, of Bucyrus, President;

Mr. George Edmondson, of Cleveland, First Vice-President; Mr. L. E. Martindale, of St. Mary's, Second Vice-President; Mr. W. K. Van De Grift, of Lima, Secretary, and Mr. C. L. Lewis, of Toledo, Treasurer.

* * *

The Fourth Annual Convention of the Indiana Association of Photographers will take place at Indianapolis, March 1, 2, 3 and 4, 1898, with a goodly list of prizes and medals. Full information can be obtained by addressing C. R. Reeves, Secretary, Anderson, Ind., or Mr. Geo. G. Holloway, Treasurer, Terre Haute, Ind.

PHOTOGRAPHERS' ASSOCIATION OF PENNSYLVANIA.

At a meeting of the Executive Board on September 2d, on which occasion the following gentlemen were present, G. Taylor Griffin, E. E. Seavy, E. H. Newell, W. I. Goldman and T. B. Clark, it was decided to hold the next annual meeting and exhibition on February 23, 24 and 25, 1898, at Bellefonte, Pa.

A careful canvass of the cities of Altoona and Johnstown was made before Bellefonte was selected, but proper accommodations could not be found in either place.

The meeting will be held in the spacious armory of Company B, 5th Regiment, N. G. P., which has been secured with light, heat and rent free to the Association, largely through the aid of Mr. H. B. Schaeffer, of Bellefonte, to whom the thanks of the Association are due.

Bellefonte is one of the noted inland towns of the State. Picturesque in its location, nestling at the base of the Alleghenies, it is appropriately named the "Mountain City," and, like classic Rome, is built on "Seven Hills." It is famous for the homes of Governors Curtin, Beaver and Hastings. It has a wonderful spring from which it derives its name, Bellefonte (Beautiful Founte).

In conclusion, let me say that this meeting place will be most interesting, and the Association will reap the benefit financially by the change.

The prize list is as follows:

Special Class.—To photographers outside the State of Pennsylvania. One portrait only (no restriction to size). First, gold medal; second, silver medal.

Grand Prize.—Six portraits only (16 inches or larger). One bronze figure.

Class A.—Six portraits only (13 inches or larger). First, gold medal; second, silver medal; third, bronze medal.

Class B.—Six portraits only (13 inches or larger). First, gold medal; second, silver medal; third, bronze medal. Open to towns of fifteen thousand or under.

Class C.—Twelve portraits only (no restriction as to size). First, silver medal; second, bronze medal; third, diploma. Open to towns of five thousand or under.

Class D.—Interiors and exteriors (no restriction as to size). Eight pictures only. First, silver medal; second, bronze medal; third, diploma.

Class E.—Commercial. Eight pictures only (9 inches or larger). First, silver medal; second, bronze medal; third, diploma.

Class F.—Amateur Class (open to the world). Six pictures only (4 x 5 or larger). First, silver medal; second, bronze medal; third, diploma.

Rules governing entries will be furnished in due time.

The Board extends a cordial invitation to photographers, both professional and amateur, manufacturers and dealers, one and all, to meet with us and thereby assist in upbuilding and elevating our beautiful art to the station to which it rightfully belongs.

T. B. Clark, *Secretary*,
Indiana, Pa.

* * *

THE BULLETIN publishes the following letter, which speaks for itself, with a bit of what may perhaps be termed justifiable pride, as it was the first journal in America to publish and put into the hands of its readers a full and complete account of the late Photographers' Association of America Convention at Celoron. —[Eds.]

New York, August 19, 1897.

Messrs. E. & H. T. Anthony & Co.:

Gentlemen,—It was with much interest that I received the August number of your Photographic Bulletin. I cannot help congratulating you on the quick and effective work of your staff in publishing the complete minutes of the Convention of the Photographers' Association of America held at Celoron, only ten days after the adjournment of that body.

Heretofore the various journals have given us bits and parts of the proceedings, with their comment covering the Convention work, with several numbers of their issues scattered over a long period of time. The enterprise shown by you in giving us at once the full minutes is meeting with the full appreciation of the photographers, and certainly must be most gratifying to those who for one reason or other could not attend. As it were, the case is stated and we are now prepared to listen to editorial comments.

Believe me, yours very truly,
Percy King.

Homeier & Clark.

A CONVENTION PRIZE WINNER.

* * *

All copy for November number must be in our hands by October 15th.

THE REDUCTION OF PHOTOGRAPHIC RESIDUES.

By Rae.

In an article on the above subject, by Rae, in the *Photographic News*, in advocacy of a systematic method of obtaining from photographic waste all that it may contain of value, the writer gives the following simple directions :

" For silver residues :

" The most profitable sources of these are old hypo baths which have been used for both plates and paper, the first wash water of silver prints, the trimmings of silver prints, and if the practice of sensitizing albumenized paper at home is carried out—by which, by the way, far finer results can be obtained than by using commercial paper—the paper used for " skimming " the bath, and the blotting paper used for drying the paper, should both be kept. First, we will deal with the hypo baths, etc. These should all be placed in a covered barrel supported on bricks off the ground, and having a wooden tap at about 6 inches from the bottom—a paraffin barrel is very convenient, and can be obtained very cheaply of any oil merchant. When the cask becomes full of solution a pound of potassium sulphide is dissolved in water and added, stirring all the time. A dense black precipitate of silver sulphide is thrown down. After about twenty-four hours this will have settled, and the clean liquid is run off, and the cask may be filled up again, when the operation may be repeated until there is a sufficiency of sediment to warrant its removal. It may then be sent to the refiner or worked up at home. In the latter case, by which, of course, the greater pecuniary benefit is obtained, the sediment is filtered free from liquid, well washed, and allowed to dry as much as possible ; this is then added to strong nitric acid, well stirring all the time. This had better be done in the open air, as most unpleasant smells are evolved. The mixture is allowed to digest and occasionally stirred for some time. Water is then added and the mixture allowed to settle. If the nitric acid has been in excess, the sediment may be thrown away, as it will only consist of sulphur and organic matter. The clear solution must now be boiled down in a porcelain evaporating basin and allowed to crystallize. This is nitrate of silver, but in a somewhat crude and acid state. To purify it, again dissolve in distilled water, and again crystallize. Waste plates, print trimmings and blotting paper should be well fixed in hypo and added to the other residues. The silver sulphide may be dried, placed in a clay crucible with about five times its weight of sodium carbonate and borax, and fused, when a button of metallic silver will be obtained.

In large houses, where a quantity of toning is done, it is worth while to recover the unused gold from old toning baths, and as printing-out papers are used so much nowadays, the sulphocyanide bath is more generally used. To the bath add a small quantity of sodium sulphite, and to this add strong sulphuric acid until the solution smells strongly of sulphurous acid; then allow it to stand for a day or so, when a brown deposit will be found at the bottom of the bottle. This is finely divided metallic gold, which should be well washed, and can be converted into chloride by dissolving in aqua regia.

"Platinum residues :

"The principal sources of these are : The used potassium oxalate developer, the paper cuttings, and, if sensitizing is done at home, the rags used for coating and the washings of measures, etc., should be preserved ; the acid baths are of no use at all, as the platinum contained in them is very small indeed. The washings and developers are placed in a basin and one-quarter of their volume of a saturated solution of ferrous sulphate added. The whole is then heated to boiling point, and the platinum separates out in a finely divided metallic form, and this can either be sent to the refiner or converted into platinum chloride. The precipitate is digested with hydrochloric acid for some time to free the platinum from any iron present ; it is then dissolved in aqua regia, which gives a solution of platinum chloride. The paper trimmings and rags are placed in a crucible and burnt, the ashes are then mixed with 3 parts concentrated hydrochloric acid and 1 part concentrated nitric acid ; this is digested for some hours at 50 to 70° Cent., diluted with water, filtered, and the remainder well washed. From filtrate and wash water platinum may be precipitated by adding ammonia .880 as ammonium chloro-platinate; this precipitate is heated and converted into metallic platinum, which can be reconverted into platinum chloride, as directed above.

ACETYLENE GASLIGHT FOR THE ENLARGING APPARATUS.*

IT is not surprising that at the present age of inventions and improvements great efforts are made to procure for the optical lantern a brighter, cheaper, and, at the same time, harmless light-source. Kerosene, zirkon, calcium and electric light would not meet these conditions. The cheaper light-sources give relatively too weak a light, while the others are too dear or dangerous in their manipulation.

The discovery of the acetylene gaslight was, therefore, hailed with pleasure. Tests made with the same gave ample proof of its utility. It can be produced at any time and is not dangerous, if handled with proper care.

The mother-substance of acetylene is carbide. By this name we understand compounds of carbon with metals. They are produced in the electric furnace at a very high temperature. Calcium carbide is mostly employed for this purpose. The calcium carbide originates by uniting 1 molecule of lime and 3 molecules of carbon, besides liberated oxide of carbon, after the following chemical equation :

$$\mathrm{Ca\,O} + 3\,\mathrm{C} = \mathrm{C\,O} + \mathrm{Ca\,C_2}, \text{ that is, calcium carbid.}$$

This calcium carbid decomposes in water to acetylene and hydrate of lime, as per formula :

$$\mathrm{Ca\,C_2} + 2\,\mathrm{H_2\,O} = \mathrm{Ca\,(O\,H)}\,2 + \mathrm{C_2\,H_2}, \text{ that is, acetylene.}$$

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*From *Photo Chronik.*

One kilogram $Ca\ C_2$ furnishes about 0.35 cubic centimeter of C_2H_2 gas. The price of 1,000 kilograms carbide is about 60 marks.* With suitable gasometers and burners it can be used directly as light-source.

The disagreeable smell of the acetylene comes from phosphoretted hydrogen (0.3 per cent.) and sulphuretted hydrogen, always accompanying the same. Phosphoretted hydrogen can easily be removed by directing the gas through bromine water or a silver solution. The latter solution has the disadvantage that it forms acetylene silver, which explodes very easily. Berthellot, however, has investigated the explosive properties of acetylene, and found that the C_2H_2, when under atmospheric pressure, will not extend beyond the point of decomposition, and that acetylene can, therefore, be designated as being not dangerous. Acetylene gas of more than two atmospheric pressures shows all the properties of explosive gas mixtures, and an explosion is not excluded when by an insufficiency of water supply to the carbide a local heating takes place, admitting a condensation of the gas to two atmospheres.

In the production of the acetylene a good-sized gasometer of glass should be used. A copper apparatus should be avoided by all means, as the acetylene will unite with copper to form a very explosive compound. The pipes for conducting the gas may be of iron. The liquid closing the glass globe should be a chloride of sodium solution, not water, the latter dissolving more than 1 per cent. C_2H_2.

The C_2H_2 should be cleaned before it is collected in the gasometer. Professor Pictet uses for this purpose a number of liquids cooled to 16 degrees C.:

1. A strong concentrated chloride of calcium solution.
2. Lead compounds.
3. Sulphuric acid.

Tests have shown that at this temperature the impurities are absorbed, but not the C_2H_2.

The essential properties of the acetylene are the following:

1. Great power of illumination.
2. Great transplanting rapidity of the flame.
3. Very low igniting temperature.
4. High temperature of combustion.
5. Explosive power.

The dangers in the use of acetylene as a light-source are not greater than those of ordinary illuminating gas.

The assertion that the C_2H_2 offers a great advantage to the photographer as a light-source, is, therefore, fully justified, and it will be very useful for projections. Its chemical light intensity has not been fully determined yet.

Translated by

HENRY DIETRICH.

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* Equivalent to $14.55

PERSONALITY IN THE PORTRAIT.

IN a recent issue of the *British Journal of Photography*, Mr. J. Rees propounds certain questions, and proceeds to answer them in a way that may be of benefit to some of our own readers, although we believe that a larger proportion of the objectionable features of which he complains will be found in European studio work than in this country. Mr. Rees says :

"Why should the contrast of expression upon the face of the photographer's customer going into, and coming out of, the studio be oftentimes so marked? And also be reversed, say, to that of the patient going into, and coming out of, the dentist's surgery ? In the latter, the ultimate, cheerful, beaming benignancy is clearly due to anticipated pain passed well through ; can it be in the former, on the other hand, that anticipated pleasure has been turned into—well, if not pain, something having a strong family resemblance, if the assured, smiling confidence of the entry, altered into the sulky and bored limpness of the departure, be any indication ?

"I fancy the explanation must be in the tedious and trivial treatment he has been subjected to, and the fashion in which his own individuality has been so completely sunk ; owing, he tells himself—though with anything but pleasure—to the limits and needs of the technicalities of the process. The items, in the shape of arms and legs, that help physically to make him up, have been particularly arranged to suit, not his convenience and comfort, but the particular powers of a lens ; his head turned into an uncomfortable position so as to be properly lighted ; he has been told to look at a special spot upon the side wall for the due bringing out of expression in the eye or eyes ; and, finally, had to keep his strained position and gaze in as statuesque a way as possible, until the operator saw fit to press the bulb or uncap the lens--the which, by the way, he was not, either, in any particular haste to do.

"Had the result justified all this fuss there would be no need of saying anything further, but it hasn't. The submitted proof, it must be admitted, is all right as far as it goes—that is, as far as the good, orthodox photograph goes ; but where is the sparkle of life and suggestion of individuality we would so much like to see ?

"Something must inevitably be lost in the attempt to represent life by means of a machine—the limits of photography be duly recognized ; but are those limits, in ordinary use, true and natural ones, or are they more or less arbitrary, accepted as classical, partly from having been handed down in practice from past workers, partly from the fact that sufficient experiment has not been made towards their bettering or supplanting by others more elastic and artistic ? Past workers in their day turned out good work, for that day, and when, probably, novelty was a material factor to help in a not-over-critical judgment of the result. But things are different now, and I contend that advance in this particular direction of portraiture has not kept pace with our increased and improved general photographic powers, and, doubtless, has a great deal to do with the general complaint of low and insufficient prices so prevalent at present.

"Comparing a good photograph of twenty years back with one of to-day, can we see a satisfactory bettering as expressive of the advance made in speed of plates, construction of lenses, and so on? I think not. On the face of it, and bearing in mind the number of workers in the field, one is tempted to believe that a certain point is not to be passed—one represented by the best style of work in a good photographer's window—were it not that we now and again come across a picture which immediately proves the contrary by springing altogether ahead of the accepted high-water mark and really coming pretty near perfection.

"It is no haphazard chance that has produced the exceptionally good result, and if it can be done occasionally, it can as a matter of ordinary course, but not by holding to rules and methods in present high and exclusive vogue. Two such—and ones better altered as soon as possible—are the subordination of too much to the lens and the taking too long and deliberate a time over the operating.

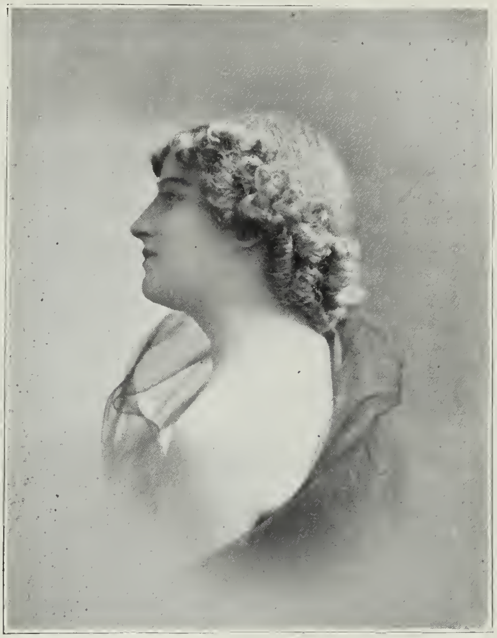
"The first consideration—it goes without saying—in portrait work, is to catch a natural position or pose; but personality is expressed by far too fine shades to stand the handling of the ordinary photographer mainly intent upon giving his lens the best chance. If the characteristic feature be, say, a poise of the head, a thoughtful lowering of the brows, or the humorous mobility of a facial muscle, is it likely that it can survive the careful arranging of a head to gain a 'Rembrandt lighting?' or a man accustomed to 'spread himself' when at ease, is it possible for him to look natural, sitting closely and stiffly in his chair to suit photographic planes?

"What are we to do? Must we develop into character readers and artists as well as photographers, to turn out 'cabinets' at 17s. 6d. a dozen? It would, of course, be well if we could add these qualifications, but it is certainly a bit too much to ask for the price, or for a higher one. But one thing we can very easily do, which would result in a marked gain, viz., leave the posing as far as possible to the poser. He, given the widest margin of freedom, is far more likely to assume a natural position than the one the operator places him in, and, in doing so, retain the individual peculiarities it should be such an essential first aim to catch and preserve. If in doing so he do not show a large proportion of face and front, why seek to alter it to suit any set canon hitherto worked up to? A particular amount of face is not a *sine qua non,* indeed, it is very conceivable that no amount at all need be; for it can safely be stated that the reverse of many a medal is more interesting, and has more character about it, than its face—and character is what we want, or should want, to portray. If the attitude be palpably an unphotographable one, a few short directions, with the reason for them, will, by an ordinarily intelligent man, be accepted at once, with interest, and acted upon.

"There should be a minimum of actual touching and arranging, even of dress folds.

"Personally, from some cause or other beyond my control, I detest being lightly touched by anybody—it gives me the 'creeps,' and sours my otherwise generally acknowledged amiable temper. I believe that there are a great many people like myself in this respect; in any case, short of this violent dislike, no one, I imagine, can care to be fiddled with—have his head turned a little on one side, arm placed to lie in a particular position, foot shoved in a bit towards the body and stand a final, deliberate, magpie, judging of the result by the photographer from a distance. It makes one think too much of a draper's assistant arranging a dummy in the window, with one's self filling the part of the dummy.

"Speedy working should be another feature, as closely aimed at as natural posing; for, granted an easy attitude and expression obtained, it is not likely to last through the ordinary, irritating shifting of the camera and its parts in focusing—very frequently the visit to the dark-room to charge the slide as well. There is no reason why the focusing should not be done beforehand, at least so approximately, as to mean nothing further at the critical moment than a correcting glance and the turn of a screw, the shortest exposure possible, made as quickly and unobtrusively as practicable, and the work is done.



J. B. Schriever.

A CONVENTION PRIZE WINNER.

"A good deal of what we hold as sacred in the existing photograph will have to be sacrificed, but it will be the sacrifice of the lesser for the gaining of the greater. The portrait lens that 'speaks' may not be a practicable instrument under the suggested changed dispensation; but then if it 'speaks' so unnecessarily as it generally does, I fail to see that its ousting from its present position need cause any great weeping and wailing. I cannot regard as of first importance such extreme definition, for instance, as we gain in our present use of it; flesh so faithfully rendered that we can make a fair guess as to what the sitter takes with dinner, or the texture of cloth so well brought out that a tailor could almost tell what it cost a yard. The impressions we carry of our friends are not such finely analyzed-out ones as these; the eye does not go so minutely into things as the lens, but takes altogether a far broader impression, and one we would come nearer to, thereby reaching success in getting rid of our close holding to this and the few other studio rules at present in use, with their wooden, finicking, meretriciously polished results, and going in instead for the breadth of a natural pose, freshly and quickly caught."

SOME REMARKS ON LANTERN SLIDES.[*]

A METHOD OF DEVELOPING: PARTIAL AND LOCAL TONING.

By Alfred Stieglitz.

General Remarks.

THE past twelve months of the Camera Club of New York will, without question, be known in the pages of its annals as the "Lantern Slide Year," for, in truth, as can be verified by the pages of the old journal, never before was there so much work done or so much interest shown in this most peculiarly fascinating branch of photography.

Slide-making originated in the United States, it having been invented, as is claimed, by Langheim, of Philadelphia, some fifty years ago. It at once became popular, and has continued to fascinate, not only those interested directly in the production of slides, but old and young, who simply wish to see pictures in an agreeable way.

Many of our best amateurs devote themselves exclusively to this branch of work, our Mr. Fraser being a notable example, notwithstanding the fact that most of the leading pictorial photographers of Great Britain and the continent look down upon slide-making as outside the "art limits," and therefore beneath their artistic dignity. It has become an accepted fact among them that the process is purely mechanical, and that at best the tonality of slides was incorrect. As for the declaration that slide-making is purely mechanical, permit me to say that, after a conscientious winter's work in this line of photography, I have come to a different conclusion, and claim that the technique of slide-making may be quite as interesting as that of the known printing processes, even including the gum methods which are now coming into vogue. Of that more anon. As for incorrect tonality, in most cases that is due to the lack of knowledge and skill on the part of the slide-maker, who has not given the matter enough study, or who, perhaps, does not quite grasp the material with which he is working. In order to properly appreciate a "picture slide"—and in this talk remember I am only referring to "picture slides"—the same must be shown under the exact conditions as prescribed by the maker, for the latter, if thoroughly at home in his work, will make his slides to suit the conditions of light and enlargement set down by him before he begins his picture. It is this factor that makes slide-making so unsatisfactory and discourages the earnest worker when he sees his slide on strange screens and quarters. Suppose I made my slide to be enlarged ten times and shown with a light whose intensity is L, so as to give the desired effect, and it is then shown enlarged to 20 / and a light with an intensity of L, what is the result! Entirely false values and consequently a false impression. But does this not hold true of prints to a certain extent? How many gems are thoroughly ruined in exhibitions by poor hanging and still more miserable lighting? We see we must make the best of existing conditions, and only show our work there where we may expect reasonable attention to our intentions.

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[*] Extract from *Camera Notes*, official organ of the Camera Club, New York. Vol. I, No. 2.

STANDARD OF SLIDES IN THE CAMERA CLUB, NEW YORK.

The standard of the slides made in our Club is high, for the judging on test nights has been unusually severe, even hypercritical, according to many members who do not understand the motives of the judges. Just criticism, though it may seem harsh at the moment, is exceedingly healthy for the welfare of the Club. There is much, too much, back-patting in the ranks of photographers. Honest criticism from capable men ought to be sought, and when given ought not to be condemned as discouraging new talent and hurting the feelings of the spoiled children in the ranks. The judges appointed for the year judged slides for their quality, by which was understood the correct rendering of tone values in connection with the other technical requirements of a slide. "Clear glass for high lights and transparent shadows" did not constitute a perfect slide, as the old-timers imagine. A first-class slide—we will not speak of perfection—very rarely contains clear glass, the lack of tone in any part of it being a serious defect. On the contrary, we have seen instances in which a faint veil over the whole slide would have been a great improvement, the subject presented thus gaining in atmospheric delicacy and charm. It is well to remember that veil and fog are not synonymous in this case. Fog is always to be avoided in slides. A luminous body only, should be represented by clear glass. We fully appreciate that our audiences, nevertheless, still go into raptures over the so-termed brilliant slide, by which is meant one lacking in all medium gradation ; in short, a black and white one. Such a slide is an abomination to the refined eye, and fortunately our precepts are bearing fruit among our members, and will therefore in due season influence those who come in contact with them ; that is, our audiences. A matter rarely considered by slide-makers is that of color, and we are therefore confronted with bright red snow scenes, glaringly pink landscapes, blue architectural interiors, etc., which, though perhaps beautiful in all other respects, are entirely ruined by this shortcoming. This defect is often due to the desire to obtain softness at the expense of color, for we all know that a soft slide is, as a rule, produced by a long exposure and a weak developer—the two factors which are also necessary in obtaining warm colors. In order to control the color of a slide without sacrificing its gradation and quality, it is often necessary to resort to special toning methods. It is upon this matter, and also on my own method of developing slides, that I wish to dwell. The slides made by me during the past year were all produced in the manner to be described, and by special request I give you my working methods so that any one may be enabled to obtain similar results.

MY METHOD OF DEVELOPING SLIDES.

Having given the plate a very full exposure, it is developed in the usual manner with any developer (I personally prefer hydroquinone), with the difference that development is not stopped until the image has totally disappeared when examining the plate by transmitted light. It is then rinsed under the tap as usual, and placed in the hypo bath until thoroughly fixed. Upon examining the fixed slide it will be seen that it is not only so thick that you can hardly recognize the picture, but that it lacks all gradation in being muddy and flat. But this condition is necessary for future operations, all of which take place in broad daylight. On a table place two white porcelain dishes. The one, which we distinguish by calling it A, should contain a 1 per cent. solution of ferricyanide of potassium, and the other, B, a very dilute solution of hyposulphite of soda and ferricyanide of potassium, say :

I. 10 per cent. solution of hyposulphite of soda.
II. 10 per cent. solution of ferricyanide of potassium.

For use, take 100 parts of I and 15 drops of II.

These baths must be renewed occasionally, as they deteriorate in the light.

In each dish, place a small camel's-hair brush and a wad of cotton, which latter may be shaped at will to suit the purpose for which it may be intended. If possible, have the table near running water, otherwise have a pailful at hand, as plenty of water is essential for delicacy of some of the operations to be performed.

Local Reduction in Order to Build Up Tone Values.

As before stated, in examining the fixed slide by transmitted light very little of the image will be visible. In order to facilitate matters, bring the slide directly from the fixing bath without previous washing, into dish A, in which it will be gradually reduced. Stop the reduction as soon as the image is fairly distinct. This is done by plunging the plate into water, thus stopping all chemical action. The slide is still very thick and flat, but it is now in a satisfactory condition for local treatment and the ultimate thinning down to the desired density.

In this state, the slide is placed in dish B, and local reduction by means of the brush is begun. This process must be very gradual, so that it be in our power to alter our relative tone values or gradation at will. You notice in this local application of the reducing agent, we in reality have the reverse of brush development in platinotype printing, with even a much greater leeway. The process of producing slides by this method is highly interesting, for effects not otherwise possible can, with a little skill, be obtained.

It is by this method that some of those striking snow scenes, shown during the winter, were produced. Originally the slides of these were considerably overtimed and overdeveloped, and then reduced in the above-described manner. Between every stroke or two of the brush, it is well to rinse the plate, so that the strokes do not show in the ultimate result. No brush strokes ought to be visible when the slide is thrown on the screen ; if any be detected, the slide is a failure, and ought to be discarded. With a little skill and practice, this method is very simple and safe, and any one having succeeded in mastering it will never resort to any other method of producing sides.

Naturally, it is essential to know something of tone values, as the resulting slide might otherwise be ludicrous in its effect. This process of developing a slide is necessarily very slow, forcing being at no stage admissible, as it would insure certain failure.

THE USE OF FORMALIN.

In winter the gelatine is sufficiently tough to withstand this seemingly rough treatment, but in summer it is well to soak the slide before the brush reduction is begun in a very weak solution of formalin for about a minute, and then rinse thoroughly. The solution used by me is 1,000 parts of water to 1 part of formalin. Sometimes the resulting color of the slide produced in the above-described manner is objectionable, and, possibly, rather uneven. To overcome this defect, the slide must be toned in a suitable bath. Among the many experiments made by me, the following will interest you most :

TONING.

In many cases it is desirable to color a slide to a pure blue, or, perhaps, only a suspicion of blue. An absolutely reliable method to obtain this color is to use the following bath :

BLUE.

I.	Sulphocyanide of ammonium	200 grains.
	Water	32 ounces.
	Carbonate of soda (granular)	2 "
II.	Chloride of gold (brown)	15 grains.
	Water	1 ounce.

For use take 2 ounces of I and 4 drops of II, always remembering to add II to I, and never reversing the operation. This amount of solution will tone at least one slide to a perfect blue. The toning bath, in order to work satisfactorily, ought to have a temperature of 72° to 76° Fahr. Using the bath at a lower temperature results in failure, as the toning proceeds too slowly and unsatisfactorily in other respects. A higher temperature will hasten toning, but the gelatine of the plate is apt to be attacked in a most disagreeable way.

P. H. BAUER.
A CONVENTION PRIZE WINNER.

To judge the process of toning, it is necessary to examine the slide by transmitted light, using daylight if possible. A thoroughly toned slide will have a pure blue color when examined in that way. According to my experience, it is advisable to tone reduced slides, after they have been dried, especially in such cases in which only partial toning is to be used. As for the density of toned slides, let me say that those toned with the above bath do not increase in density perceptibly.

GREEN.

In order to obtain a green slide, the following treatment is best :

I.	Oxalate of iron	20 grains.
	Ferricyanide of potassium	15 "
	Water	32 ounces.
II.	Chromate of potassium	5 grains.
	Water	16 ounces.

Bathe your slide, which in this case must be somewhat lighter than the desired result, in solution I. In this bath the color will turn to a dark blue. From this it is placed in solution II for a minute, and then dried. When dry, the slide will be a bright green.

Bartolozzi Red.

Bartolozzi red is obtained by using the following bath :

I.	Ferrocyanide of potassium (yellow prussiate)	15 grains.
	Water	16 ounces.
II.	Nitrate of uranium	30 grains.
	Sulphocyanide of ammonium	150 "
	Citric acid (crystals)	30 "
	Water	16 ounces.

For use, take 1 part of I and 1 part of II, and place your slide, which must be first thoroughly soaked, in this solution. It will quickly assume a beautiful Bartolozzi red color. In many cases the whites are stained in coloring the slides in this way, and in order to remove the same dip them into

Carbonate of soda	15 grains.
Water	32 ounces.

for a moment, not longer, and the stain will disappear. After this operation proceed to wash.

Partial Toning.

In using the gold toning bath some beautiful effects of color may be obtained by so-called partial toning. These colors are obtained by dipping the slides into the toning solution for a short time and then examining them by transmitted light. The combinations of the original ground color of the slide and the partial deposit of the gold, which is blue, give us quite a range of purples, blues, reds, grays, blue-blacks, etc., the color depending upon the ground color and the length of toning. Many of the snow scenes, before mentioned, were treated in this way.

Local Toning with Different Baths.

While experimenting with the above-mentioned and many other coloring processes, it struck me to try and color slides by using these baths on one and the same slide locally. In order to succeed, quite a little skill in handling the brush and the various solutions, as well as the water faucet, are essential. And even at that, most slides are apt to be spoiled by the colors running into each other. My mode of procedure is as follows : I take a dry slide, dip into water so as to simply moisten the surface of the gelatine, and then apply the gold toning solution with a small or large brush, as the occasion may require, to those portions of the slide which are to be colored to blue, and shades of the same, and also the blue-blacks and purples, all of which are obtained by the sulphocyanide bath. After these portions of the slide have been colored satisfactorily, an operation which is most trying to one's patience and nerves at times, the other portions are treated successively with the various remaining baths. In most cases the results are exaggerations and also crude; nevertheless such a slide, especially from a chemical point of view, is of great interest. In certain instances, however, such local coloring or toning is of great effect and beauty, especially if the original ground color of the slide be kept and another color simply suggested in parts. Some of the Venetian scenes in which water, sky, and a few houses and gondolas make up the picture, treated in this manner, show up beautifully.

As a general rule the monochrome slide is preferable to those colored by any means whatever, especially for pictorial purposes. Nevertheless, an occasional suggestion of color, if used very discriminately and with understanding, relieves the monotony of an evening's entertainment of slides, always remembering that by colored slides I refer to photographically colored ones, and not those tinted by hand with aniline dyes. Those can hardly be included within the limits of legitimate photography.

OBITUARY.

The Late Mr. W. H. Harrison.

By the death of Mr. W. H. Harrison, of England, which occurred on the 10th of August, the photographic world has lost a member of its army of scientific workers who has done much to develop that art-science. Mr. Harrison's early life was spent with the Great Western Railway Company, and through hard work and close application he rapidly rose until he was selected for an important post in connection with the laying of the submarine cable connecting England and Ireland. During this part of his life he devoted a great deal of attention to photography, and was a prolific writer, contributing articles upon that and kindred scientific subjects to various British and American journals. He was at one time connected with the Bulletin as its English correspondent, and was well recognized, both on the Continent and in this country, as an authority upon photographic matters. He was a man of broad thought and research, and what he has done for photography will have its effect in later years even more, perhaps, than during his lifetime.

It is suggested by a writer in the *Photographic News* that dark-room sinks should be lined with thin sheet lead, as in his opinion this is the best material for the purpose, being impervious to the action of chemicals and not liable to crack. There is also less liability of breaking measures and bottles if dropped therein.

It is suggested also that if thin sheet lead is used to cover the wooden structure, it would be a good plan to place two or three sheets of heavy brown paper between the lead and the wood.

A FEW HOLIDAY NOTES.

By Rev. F. C. Lambert.

To the average amateur the annual holiday time is looked forward to as the great time of ingathering a crop of negatives for subsequent printing, etc. All too often our holiday time is shorter than we could wish. We feel that the most must be made of it, and consequently we are apt to "rush" our work by not selecting the subjects with sufficient care as to arrangement, lighting, etc., and too often exposing plates on subjects that are the "same old thing," commonplace and quite uninteresting, or that are almost certain to result in disappointment, if not complete failure, subjects which really rely for their charm on colors—which will not appear in our finished print. Often enough we are told that our failures should prove stepping stones to success, but unless they are conscientiously studied with that end in view, they are only likely to prove helpful in building up the fortune of the plate-maker. Before starting out for a holiday trip one cannot do better than spend an hour or two in going over last year's prints or negatives and making a list of the points where each or any of them are at fault, jotting down any point where we could imagine any improvement. If these notes are carefully gone through once or twice, some of our common faults will probably be remembered, and, be it hoped, amended also. If we are fortunate enough to have a friend with the advantage of wider experience, we may gather a few hints from his running criticism. He may not only point out faults, but also suggest methods of avoiding their repetition which may be unknown to us. The next point is that of wasting plates, *i. e.*, using them on subjects which are not reasonably likely to yield satisfactory results. It is a very good thing to get into the habit of asking one's self before making an exposure, "What am I aiming at? What is my object in selecting this view? What special point do I wish to seize? What impression am I trying to convey?" etc. In a word, "Be definite," and know what you are intending to do, for if not, the chances are that you will be like the Irishman, who "When he aims at nothing, generally hits it." It is by no means a bad test of one's own definiteness of intention when we are able easily to give something like an appropriate title to the scene before us. For example, we may mention a few likely ones at random: "Many a Leaden Cloud Has a Silver Lining," "Jolly Companions, Every One," "A Coming Storm," "Happy Childhood," etc. There can be no doubt that a study of good poetry, Longfellow or Tennyson, for example, not so much with the view of committing to mind catchy lines or phrases, as seeing with the poet's eye the thoughts he saw as he wrote, has an educational effect upon us. Not only does it draw our attention to phases of Nature, etc., which we had passed over, not seen before, but it also widens and quickens our sympathies, and so leads us on to make our own original observations and to notice subtle changes. What, however, is to be unreservedly condemned is any confusion of sentimentalism for sentiment; of substituting the sham for the real, the base metal for the true. This unfortunately is not unknown in photography; indeed, one can hardly visit any exhibition without seeing examples of it; where some obvious fluke has resulted in a fairly good technical result, and the author has afterwards begged, borrowed or stolen a line or phrase which seemed to fit fairly well. But in such cases the misfit is usually too obvious. The title and the print do not belong to each other. What should be pathos is probably bathos.

The next point of advice is, keep a note book and make an entry of every plate exposed. Let the entry be as full as possible; *e.g.*, continuous number or number of plate for that trip; number of slide; month, day, hour; light at the time; subject (fully described, giving the title as it appears to strike one at the time, for instance, "First Gleam After the Storm," "Patience Rewarded," "Love's Young Dream," etc.); plate, lens, stop, exposure; note for development. If any of these details be omitted and trusted to memory, it will surely come about that it is just that very (omitted) point that is the one you will want to know exactly. N. B.—Before developing, mark on the film, in the corner of the plate, using a finely pointed and not very hard pencil, the continuous number of the plate corresponding with its entry in the note-book. It is a study of the entries in the note-book that often shows where mistakes have been made, and for similar cases such details are also of great value, helping one to improve upon previous efforts. Before commencing development the note-book should be consulted, the details read over and a mental effort made to recall the scene. All this will be of great help in telling us if we are to aim at a vigorous or delicate negative, etc., etc.

Next, a few jottings gathered from experience in the field may be helpful.

Wind is one of our troubles. Not only does it become bothersome when it seizes the focusing cloth and whirls it out of our hands, but, what is perhaps worse, it causes the camera to vibrate and disturb the sharpness of image. The focusing cloth should be made tube-shaped or cylindrical, with a slot at each end, in which is inserted a piece of elastic. One end slips over the front part of the camera and the other over the head. A suitable opening below admits the tripod top. For a guard against vibration the writer uses the following device with satisfaction: At the top end of one of the legs is fixed a screw-eye. A stout piece of solid round rubber is obtained. Its length may be from 3 to 4 feet, and of the size of a stout cedar pencil. To one end is fixed a small swivel. The other end is tied in a loop big enough to admit the foot. For use the swivel is hooked into the screw-eye near the tripod head, and the foot inserted in the loop and pressed on the ground. If the length of the piece of rubber is properly adjusted, the tension (when the foot is on the ground) is sufficient to hold all safe and steady. Moreover, this sets both one's hands free. As regards wind moving trees, sails, grass, etc., a good deal can be done by watching attentively for a lull in the gusts. A waving branch in the foreground can be steadied by attaching a stone to a long string and tossing it over the troublesome branch. Foreground long grass can also be manipulated by catching the heads of grass one against the other.

Rain is also one of our inconveniences, as it is apt to affect the sliding parts and make them stick or jam. If, however, the reader will invest in a thin piece of black water-proof cloth and use it for a focusing cloth (bag-shaped as already described), he will always have at hand a convenient protection against a shower. It may be news to some of our younger readers that beautifully soft effects can be caught while it is raining. It seems to act in a most helpful way in softening sharp outlines and giving breadth and atmospheric effect. It is, of course, advisable to guard the lens itself against rain falling on it, but no fear need be felt about rain drops falling quite close to the lens.

Figures again are troublesome when they are anxious to be included in our view, and we do not want to have them. Several dodges may be tried. For example: Let them pose themselves. Insert a slide, but do not draw the shutter, and then with a flourish lift off the cap so that all may see it. Probably the figures, thinking they have been "taken," will now move away, when the plate can be exposed. If they do not move away after the first imaginary exposure try the dodge of arranging them, but just outside the margins of your view. If they are children let them come quite close and sit down on the ground just under your lens, and you can then get all you want over their heads. Another effective dodge with obstinate figures is to select your view, say looking up a street. Now swing your camera right around and look down the street. The children will all rush to be included in the down-hill view. Let them all pose, the further away the better. Then swing round again and get your up-hill view before they can rush back. Another good dodge of getting rid of children is to let them all see you throw a small coin in some out-of-the-way place, among the grass, and let them all try their luck in finding it.

Animals in the field are not so easy to manage, but horses, cattle, sheep, etc., can often be managed by slowly walking about towards or among them. Their attention can often be caught by imitating certain sounds, such as the barking of dog, etc.

Packing plates before and after exposure. Plates, especially large ones, are much less likely to get broken if resting on their edge than when flat down. It is a good plan to tie all the boxes into a solid mass with stout string or tape and then surround them with some soft material, as cloth, clothes, etc. If the plates are carefully dusted after exposure and then put film to film without anything between, they may be returned to their boxes and brought home. On the whole it seems that the advantages are in favor of this method. If tissue or other paper be put between the plates and any irregularities or creases are present, the uneven pressure so caused is apt to result in marks on development. It is pretty generally known that pressure alone will cause a developable mark. If three pairs of exposed plates, film to film, be tightly wrapped in two or three sheets of thin brown paper and then tightly packed in their boxes, they may be carried home again with little or no fear of harm arising. Thus each box contains two packets of half a dozen plates each. All plates should be slowly and carefully dusted when put in the plate-holders. After exposure a small gum label should be put on one corner of each plate. This is marked with the continuous number corresponding to its note book entry as it is removed from the slide and so confusion prevented. This number is penciled on the film just before development. When out with half a dozen plates it is better (when in doubt) to duplicate exposures and so make sure of three good things rather than chance getting half a dozen middling ones.

ANNOUNCEMENT.

St. Louis, September 1, 1897.

To the Photographic Fraternity:

We feel that an explanation is due our many friends, who have suffered inconvenience on account of our failure to fill their orders with the customary promptness.

There has been a phenomenal increase in the orders for Cramer plates during the last three months, so that at the present time the demand far exceeds the supply, and we are way behind in filling our orders.

However, we are at the present time busily engaged in enlarging our capacity and are pushing matters to completion with all possible dispatch. When the improvements which we are making have been completed, we hope to be in a position to fill all orders regularly.

Thanking you for your valued patronage and craving your indulgence for a short time longer, we remain,

Yours fraternally,
C. Cramer Dry Plate Works.

OUR ILLUSTRATIONS.

IN the several illustrations of the present issue are to be found further examples of the recent Convention prize-winners. That of The Harness-Maker, appearing as the frontispiece, is from the exhibit of W. R. Otto, of Buffalo, which was awarded first prize in the Genre Class, Eastern Division.

The charming study on page 307 is from the studio of Homeier & Clark, of Richmond, Va., and is reduced from an original photograph, 9 x 14 inches, which formed a part of their exhibit in Class B, Southern Division.

J. B. Schriever, of Emporium, Pa., is represented on page 313 with a reduced print from photograph on 14 x 17 plate, exhibited in Class B, Eastern Division, while the dainty subject on page 317 is by P. H. Bauer, of Leavenworth, Kan., from cabinet card in his exhibit under Class D, Western Division. Comparison of these several subjects with the markings of the judges, published in the last issue of the Bulletin should be of value to all.

ON THE USE OF CITRATES IN PYRO DEVELOPMENT.

IN a recent number of the *Amateur Photographer*, under the above heading, Mr. Harry Selby says:

"It is somewhat surprising that so little is known among the advocates of pyro development of the use of the citrates, whether of ammonia, soda, or potash, for the purpose of obtaining density and contrast. No doubt one of the principal causes of this ignorance is the curious silence on the subject of the writers of elementary books on development. It is inconceivable that they are not aware of one of the greatest powers that science has placed in the hands of the photographer, and their silence is all the more surprising on that account In "The Dictionary of Photography" full directions are given as to the preparation of the solutions, but the writer of this article considers that a few words in the columns of the *Amateur Photographer* will be more likely to meet the eye of the average amateur than the directions given in the popular work mentioned above.

There are two kinds of negatives in particular in which the citrates are of especial value. Firstly, those of outrageous over-exposure, particularly where the over-exposure is known to have been given. This class we will deal with later on. The second class is the one which is perhaps more familiar to the amateur. We have all of us met with negatives in which, for some inconceivable reason, the shadows and the high lights have come up closely one after the other, and in which, notwithstanding the addition of more of the density-giving and restraining elements, the required density and contrast have resolutely declined to result, the eventual negative being in fact flat and unprofitable. Now, what does the photographer do in such cases? If he be wise he will smash the negative, but probably he will resort to intensification, and it is notorious that the result will in nine cases out of ten be a poor substitute for a properly developed negative. It is profitless to enter into a discussion of the causes of this phenomenon, whether due to carelessness in exposure or to some peculiarity in the light at the time, such as a saturated condition of the atmosphere. We have here to deal with the method of treatment when the phenomenon appears. If, when the shadows in the negative refuse to be held back by ordinary methods, or even before such means as a fresh developer, strong in pyro and bromide, are applied, a few drops of a strong solution of a citrate be added to the existing developer, the desired result will be attained. The negative may be left to soak even for hours without fear of fog, and the density will grow infallibly. The great point is to take the bull by the horns in time before the shadows have come up too far, otherwise the result will be a negative of a nature not desirable for printing in weak light. This is, of course, obvious, as citrate is not a reducer, and, consequently, veiling having set in, cannot by this means be removed. Now a few words as to the other class of negative, in which over-exposure of a serious nature is known to have been given. We will take a case in which we expose a plate of terrific speed, on a subject of extreme brilliance—such as sea and sky—when we are unable to increase the speed of our shutter beyond a given point, and when we do not wish to reduce the aperture of our lens. The ordinary methods of development may, in the hands of skilled photographers, be sufficient to deal with such a case, but the writer does not appeal to skilled workers. They are capable of taking care of themselves. To the ordinary worker the citrate is here of immense value, as any amount of density and contrast may be obtained. Or we may take a more aggravated case, where, through carelessness, or what you will, an exposure of seconds even has been given on an extremely rapid plate with a bright subject. Here we venture to think that the usual constituents—pyro, bromide, and ammonia—are scarcely competent to produce perfect results. The writer mentions these two cases as he had recently to deal with two of exactly similar description, and by the aid of citrate of ammonia was able to produce good results. This is the more astonishing as in the second case an exposure of two seconds was inadvertently given on a Cadett lightning plate, the subject being open landscape, with lens working at *f*/12. The citrate in each case was applied as soon as the sky began to appear.

The use of citrate is not recommended in every case, but it is no doubt an advantage to have it close at hand on the developing table in case of need. The only disadvantage lies in the multiplicity of bottles; surely no great matter, considering the benefit to be derived.

There is one curious result from the use of this salt, namely, the color of the deposit in the negative. Instead of the usual black deposit of metallic silver, we generally get one of a grayish tint, in aggravated cases resembling very closely that in a wet-plate negative. This would appear to be due to the presence of citrate of silver. It does not, however, seem to affect the printing quality of the negative in any way, either as regards speed of printing or contrast.

As to the chemical action of the citrates, whether that of a restrainer, pure and simple, or not, the writer is not competent to speak. Probably it is so, though of a very powerful nature, as plates can be developed with pyro-ammonia and citrate without bromide, but the action is slow, and more ammonia is required than is the case if bromide is used.

As to the strength of solution, we do not think this a matter of great importance. In our own case, we have purchased a saturated solution of citrate of ammonia and used four or five drops to two ounces of developer. It is not a scientific method of proceeding, but it appears to answer. We have seen it recommended to pour off the developer and soak the plate for five minutes in a weak solution of citrate, again applying the developer till density is attained. We have tried this and found it act well, but it does not appear to offer any advantage over the method explained above.

All copy for November issue must be in our hands by October 15th.

PHOTO CERAMICS IN THREE COLORS.

(AN INDUSTRIAL PROCESS.)

By P. C. Duchochois.

THE chromo-photographic process in three colors has not yet been applied to ceramics, although, as a means of obtaining, at little cost, burnt-in reproductions of colored subjects, it has incontestable advantages.

Of course, these reproductions can be done by the superposition of three transfers—one yellow, the other red, and the third blue, printed from photo-engraved plates. The manner of operating suggests itself, being entirely similar to that employed in manufactures, and not presenting other difficulties than the exact registering of the three colored monochromes, printed as usual on pellicles or on a special tissue paper, each monochrome being burnt in before another one is placed over it.

Besides this process, there is one in true half-tones, *i. e.*, without dots or lines, and, therefore, more artistic, which, we believe, has not been applied to chromo ceramics, and which the industry can adopt with profit for certain kinds of work. We refer to the dusting process, adapted to the three-color method. The object of this article is to describe it with sufficient detail to enable any one to utilize it.

The dusting process is based, as most of the readers of photographic publications probably know, on the hygroscopic property of certain substances—glucose, sugar, gum arabic, dextrine, etc.,—which, when acted on by light in presence of an alkaline bichromate, gradually lose their hygroscopicity, whereby any matter, ground into a very fine powder, and dusted on a layer of the bichromated substances in question, previously impressed by light under a cliché, adheres upon it in being distributed in gradation from light to shade, according as the luminous action has more or less, or not at all, modified the hygroscopicity of the substance. The result is a perfect counter-type of the cliché, whether negative or positive.

The following compound is quite reliable. It keeps well in the dark for a week or ten days in good condition. It is advisable, however, to employ it within forty-eight hours after its preparation. Before use it should be filtered with care:

Glucose, liquid	50 minims.
Gum arabic (powdered the best)	25 grains.
Ammonium bichromate sat. sol	2 drams. *
Water	1 ounce.

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* The solution can be prepared beforehand in quantity, discarding the bichromate, but replacing it by a few drops of carbolic acid, to prevent fermentation.

The material—glass, porcelain, faïence—is flowed with this compound, drained in a vertical position for a few seconds, and, the excess of liquid accumulated at the lower edge being wiped off with a rag, the coating is rapidly dried over an alcohol lamp, or in an oven heated sufficiently to avoid crystallization. Three or four minutes should suffice to completely desiccate it.

Small plates can be coated in this way. If they are large, it is well to equalize the coating by means of the turning table at a slow speed. Such a table, with a gas ring under the whirler, as is employed in some photogravure establishments, is quite handy, for the coating dries at the same time that it is equalized. The temperature of the plate should not exceed 110° Fahr., and the operation must be done by a yellowish light.

While coating, it sometimes happens that the bichromated compound does not flow well on the material; it divides and contracts, leaving bare spaces. One avoids it by rubbing the plate with alcohol and rotten stone or whiting, rinsing well under the tap, and, after draining, coating the plate while it is surface wet. This done, the excess of liquid is drained and thrown away, when the plate is coated again, but in another direction. Bubbles of air and dust must be avoided with the greatest care. They give rise to stains, which it is very difficult to retouch.

In the process now in question, only diapositives are employed for printing, and, it very often happens that the material upon which the colored image must be printed and burnt in, is not exactly plane, and, therefore, does not admit the use of rigid clichés. They should be made first on patent glass plates, then transferred on flexible and translucid pellicles. Another reason for having the diapositives on such pellicles is that they can be used as reversed clichés to obtain the image in its true way.

When the image is to be vignetted—portraits, for example—as it cannot be very well done in printing on bichromated films, and as the picture is an exact reproduction of the diapositive, the latter should, consequently, be vignetted when printed from the negative.

The negatives must be of medium intensity, perfect, clear, free from fog. For that purpose it is advisable to somewhat over-expose in order to obtain the faintest details in the shadows without pushing the development to force them out, and, as a consequence, to obtain the half-lights and shades with their relative values. A slow development is recommended. Intensification—we always speak of picture in true half-tones—is objectionable, since, by increasing the intensity (and, therefore, the contrasts), it often impairs the transparency of the half-tints, and blocks off the delicate details in the deep shadows.

The diapositives should be clear, transparent—possessing, in a word, the characteristic of the negatives. Their intensity should be about that of lantern slide—rather less, if anything. They are best made by the collodion process, or Carbutt's gelatine plates for transparencies.

The negatives are made, of course, by the three-color process, whose description we cannot give in this article with sufficient details to be useful on account of its length. We will, however, say a word (theoretical) about the screens employed to make the analysis of the three primary colors, as it is the most important part of the process.

Examined by the spectroscope: *

The screen for the blue printing negative should absorb the colored bands from H to $E\,\frac{3}{4}\,D$, that is, from the extreme violet to the line of the yellow. The ultra violet rays should be suppressed.

The color of the screen is orange. It must tend more to red than to yellow.

The screen for the red printing negative should absorb the colored bands from A to $C\,\frac{3}{4}\,D$, that is, the red and orange.

The color of this screen is green-yellow. It must tend more to green than to yellow.

The screen for the yellow printing negative should absorb the colored bands from E to $D\,\frac{1}{4}\,C$, that is, the yellow and green.

The color of the screen is blue-violet. It should tend more to blue than to violet.

The bands absorbed by the screens should be well defined. However, as the color of the same—the orange-red, especially—necessitates much lengthening of the exposure time, it should not be deeper than useful to effectively restrain the action of the rays, which should not act on the photo film.

As to the photo plates, one may use for the three negatives those sensitive to red and yellow. It is advisable to color-sensitize one's self the gelatino-bromide plates of ordinary sensitiveness prepared without iodide. Better and more certain results are obtained.

To avoid a cause of frequent error, each negative, and, in consequence, each diapositive, should be labeled with the name of the color to be employed when printing from it, and, for registering, marked with three transparent dots on the negative, in order to superpose the images, so as one exactly coincides on that previously printed.

Exposure.—The material, coated with the bichromated compound, is exposed under the diapositive when dry, and, to prevent it from absorbing moisture during this operation, while still warm.

The exposure time necessarily depends upon the intensity of the cliché and the state of the weather. If the cliché is, as it has been advised, of medium intensity, clear in the shadows, and the sky not overcast, from three to five minutes' exposure suffices in the shade. Exposing in the sun is not advisable, and should be absolutely discarded with pellicle diapositives.

When the exposure has been short, the picture is very soft and the contrasts deficient. On the other hand, they are more or less exaggerated by over-exposure. As much as possible the exposure time should be exact, for in the three-color process each proof should have very nearly the same character, else when the synthesis is complete, one will obtain a coloration different from that of the original.

(*To be concluded in November* BULLETIN.)

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* A pocket direct vision spectroscope suffices. Cost, about $12.

"PLUCKY" HALF-TONES.*

Since half-tone work has been reduced pretty much to a system, each operator following a general routine which prevails all round the trade, the process has lost individuality. A small firm often turns out very much the same results as a larger concern in spite of the wide difference in the length of time each has been established, and the amount of capital respectively embarked. In fact, it is not improbable that on the whole the smaller firm turns out the better work of the two, but whether this is so or not, it is unquestionable that from the customers' point of view there is a monotonous uniformity in the half-tone work of to-day. The editor of *The Amateur Photographer*, in a recent issue of that journal, voices the prevailing complaint against the "process man." "The most frequent trouble," he says, "is that the half-tone process block-maker fails, apparently, to recognize the value or beauty of delicate half-tone, and from photographs of widely different character persists in producing the same harsh 'plucky' results. From an artistic standpoint, the half-tone block is, except in rare cases, about where the photographic print was ten years or so ago. Certain technical standards obtain, and are blindly followed, and not sufficient variation made to suit the quality and intention of the original." We must admit that there is a good deal of justice in our contemporary's complaint, but it must always be remembered that process has its limitations, and perhaps the editor of *The Amateur Photographer* has expected too much of the process in the cases he instances. We know that there are many conscientious operators who endeavor to make due allowance for "character" of the original, but even they are very apt to be led astray by a too strict adherence to routine. For instance, while they will set the screen distance right enough to suit a weak original, they will, when it comes to developing, intensifying, and reducing the negative, rob it of all its character and detail, simply because they feel they must get a certain quality of dot at any cost. Thus they watch only for the shape, density, sharpness, and size of the dot in the shadows and its joining-up quality in the high lights, forgetting entirely the pictorial character of the negative, and the result it is going to render. All they think about is to get a "plucky" negative with high lights well closed up and dense fine points in the shadows. Any one who has been engaged in making half-tone negatives knows that it is not easy to get this result from all kinds of originals, and to obtain it various dodges are resorted to in order to force all negatives to this standard. As a consequence, the half-tones partake all of one character. Some may suit the standard, and thus are accounted for the flukes which occasionally please the customer and serve as specimen blocks, but perhaps two out of every three of the half-tones turned out of the studio are reproductions in which all the character of the original is lost. The operator is not altogether to blame for this state of things. He knows perfectly well that unless he sends this standard class of negative to the printer, the latter will complain that he cannot get the prints off, or if he does get a result which he and the operator may consider passable, the etcher rejects it as not up to his standard. In many cases the employer or the manager has not sufficient technical knowledge to say where the fault lies, and as the etcher says it is the printer, and the printer says it is the operator, while the operator cannot blame it on to any one else, the matter resolves itself into imperative instructions that if the operator cannot make negatives which the printer can print and the etcher can etch, he will have to go. Such a state of things is utterly subversive to good work, and is the principal cause of the present standstill in the quality of half-tone work. In the last year or two it reached a standpoint of excellence which was far away in advance of previous efforts because the trade learned to adopt newer methods and better appliances, but, having reached that point, there the half-tone has stuck. There is no attempt at any fundamental improvement. The little improvement that has been made has only been in a "tinkering" direction, by means of fine etching and tool engraving. It would be far better to attack the faults of the half tone at its root—in the making of the negative and the printing. Look at the progress made in recent years with ordinary photography ; has it not been due to the varied methods and styles of negative making and printing? And would this improvement have taken place if photographers had blindly adhered to one class of negative for all subjects? No; they have learned that the character of the negative must be suited to the subject and the printing process, and, should the latter prove unsuitable to the negative, other processes have been adopted. Here, then, is a lesson for the process worker. It is no good for him to say that only a certain class of negative will suit the printing process, for if that be true, then he must strive to change his method of printing, or he must modify the etching. There is really no excuse for the present conservatism of the process worker, except perhaps the commercial one that experimenting with new processes does not pay, and he has had enough of that in the past, while the work is so badly paid for nowadays that there is no margin. We admit that these are substantial considerations, yet we think that the operator and the printer and etcher might co-operate to try a few new ideas in spare moments, such as those in which they sit and smoke their cigarettes waiting for the exposure going on. A little kindly encouragement on the part of the employer would also do much to stimulate the endeavor to improve the quality of the work. If something is not done soon, we may depend upon it, continental firms will get ahead of us, and we shall be as far behind American work as ever.

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* From *Process Work*, July, 1897.

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COLLOTYPE VARNISH.—The following varnish for collotype prints has been recommended. It is said to give them a surface like an ordinary silver print:

Bleached lac powdered	25	parts.
Alcohol	85	"
Ammonia	65	"
Boiling water	125	"
Glycerine	6	"
Dextrine	0.25	"

The shellac gives the glaze, the ammonia removes any grease from the print, and the glycerine prevents the cracking of the varnish when dry. It has been recently pointed out that the bleached lac obtainable in England does not always give a clear solution in alcohol, but that German lacs do. The latter, however, cost quite double the price of the English article.—*Process Work and the Printer.*

* * *

ALCOHOL that has been used to dry negatives soon becomes diluted with water to such an extent as to be almost useless. If the diluted spirit be put into a clean bottle containing an ounce or so of well-dried potassium carbonate, a few minutes' vigorous skaking will cause the water to leave the spirit and become absorbed by the potash. The bottle should then be left to stand for an hour, when the alcohol can be decanted from the heavier solution of potash, which will remain at the bottom. The potash can then be collected and dried in an oven, and will then be ready for a similar purpose on another occasion.—*Process Work and the Printer.*

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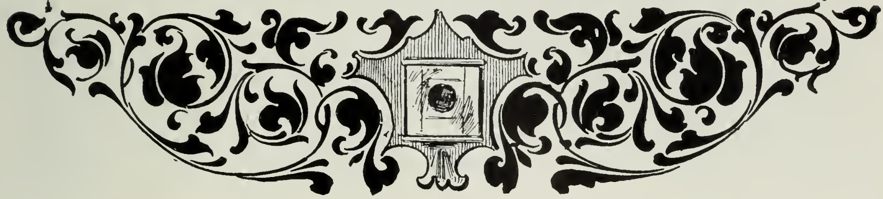
IT is not infrequently the case that Waterhouse diaphragms are mislaid, in which event a very good substitute can be made by cutting a circular hole in a piece of cardboard, which should preferably be blackened on the side nearest the plate holder.

SOCIETIES



THE Young Men's Christian Association Camera Club, of Duluth, Minn., held its annual meeting at the Association Rooms last evening. The following were elected officers for the ensuing year: H. J. Jeronimous, President; C. P. How, Jr., Vice-President; E. G. Morse, Secretary and Treasurer.

* * *

THE Wallingford (Conn.) Camera Club has been established with the following officers: President, Lothar baron von Grave; Vice-President, H. H. Hawkins; Treasurer, Prof. Franz Milcke; Secretary, F. L. Lathrop. Its headquarters will be on Main street, and will include two darkrooms, reading-room and reception-room.

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THE Photographic Society of India announce their tenth international exhibition of photographs, to be held in Calcutta during January and February of 1898, which will be open to the world. Four gold medals, twelve silver and fifteen bronze medals are to be awarded, if the exhibits are of sufficient merit, in classes embracing landscape, architecture and interiors, portraits and groups, genre pictures and studies, photographs of objects in motion, lantern slides and transparencies, stereoscopic prints and slides, photo-mechanical processes, apparatus and appliances. Exhibits should be sent from America not later than the 1st of November.

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THE Plainfield Camera Club, of Plainfield, N. J., announce that during the last week in November an exhibition will be held of the work of amateur photographers, under the auspices of the Club, and invite contributions for exhibition from all interested.

Information may be obtained by addressing Mr. Harold Serrell, Chairman of the Exhibition Committee.

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THE Buffalo *Express* announce their seventh annual contest in amateur photographic competition, closing on the 20th of November. Prizes in amount of $125 are offered, and this exposition is open to all amateurs desiring to compete. Information may be obtained by addressing the *Express*, Buffalo, N. Y.

* * *

AT the annual meeting of the Lancaster (Pa.) Camera Club the following officers were elected: William S. Gleim, President; W. A. Heitshu, Vice-President; F. A. Demuth, Secretary and Treasurer, and G. Howard Werntz, Librarian.

The club is in a very prosperous condition, and has been doing a large amount of lantern-slide work since its organization.

Our Reviewer.

We have received from Dean Brothers' Steam Pump Works, of Indianapolis, a photograph showing the interior of their machine shop, made at about eleven o'clock in the morning under a hazy sky, without other light than that admitted by the windows on all four sides, which is quite remarkable for its sharpness of definition and almost entire absence of halation. The plate is an 8 x 10, and shows the interior of a room 60 x 375 feet, running east and west, with the camera facing the eastern end. It is seldom that a view of this description is obtained excelling in photographic qualities the one in question.

We should be glad to publish it were it not for the fact that the figures and detail would be too small to render themselves adapted to this method. Messrs. Dean Brothers are to be congratulated upon the results of their work.

Several photographs illustrating life and customs in the Australian country are at hand from Mr. H. Crisp, from whom an interesting article will be found in the forthcoming volume of the "Annual." The prints in question are like all that we have seen from Mr. Crisp's hand, excellent in technique and of an interesting nature.

From the hands of the Scranton Photo Supply Company, Scranton, Pa., we are in receipt of the "Spasm," not one of the painful kind, but printed on four-page octavo paper, the one in question being No. 1, Vol. I. We understand that it is the intention of the company to allow these "Spasms" to recur at irregular intervals with the idea of imparting to the trade and people interested information regarding the goods they carry. In filling a field of this nature, we believe the "Spasm" will be welcomed.

The following new German publications are in the market:

M. von Rohr, "History and Theory of the Photographic Tele-Objective," published by K. Schwier (*Deutsche Photographen Zeitung*), Weimar, Germany. An excellent little book, in which the editor gives a very good description of the photographic tele-objective and explains in a comprehensive way its functions.

F. Paul Liesegang, "The Correct Application and Use of the Objective." A worthy addition to the author's well-known series of photographic publications, and will be read with interest by the professional as well as the amateur speaking the German language.

"Bromide Enlargements and How to Make Them," by J. Pike, is the title of a well-written little book published as No. 13 of the Popular Photographic series, by Percy Lund, Humphries & Co., of London. It treats of the various steps and methods of procedure in this very interesting field of work in a clear and simple manner, and will be found very useful to the amateur or the beginner in this line. Price, 25 cents.

The International Annual of Anthony's Photographic Bulletin is now in such a state of advancement that we can speak with authority as to its good qualities and can assure the readers of the Bulletin that it will equal or excel in interest and value any of its predecessors. Full announcement of contents will be found in the next issue of the Bulletin.

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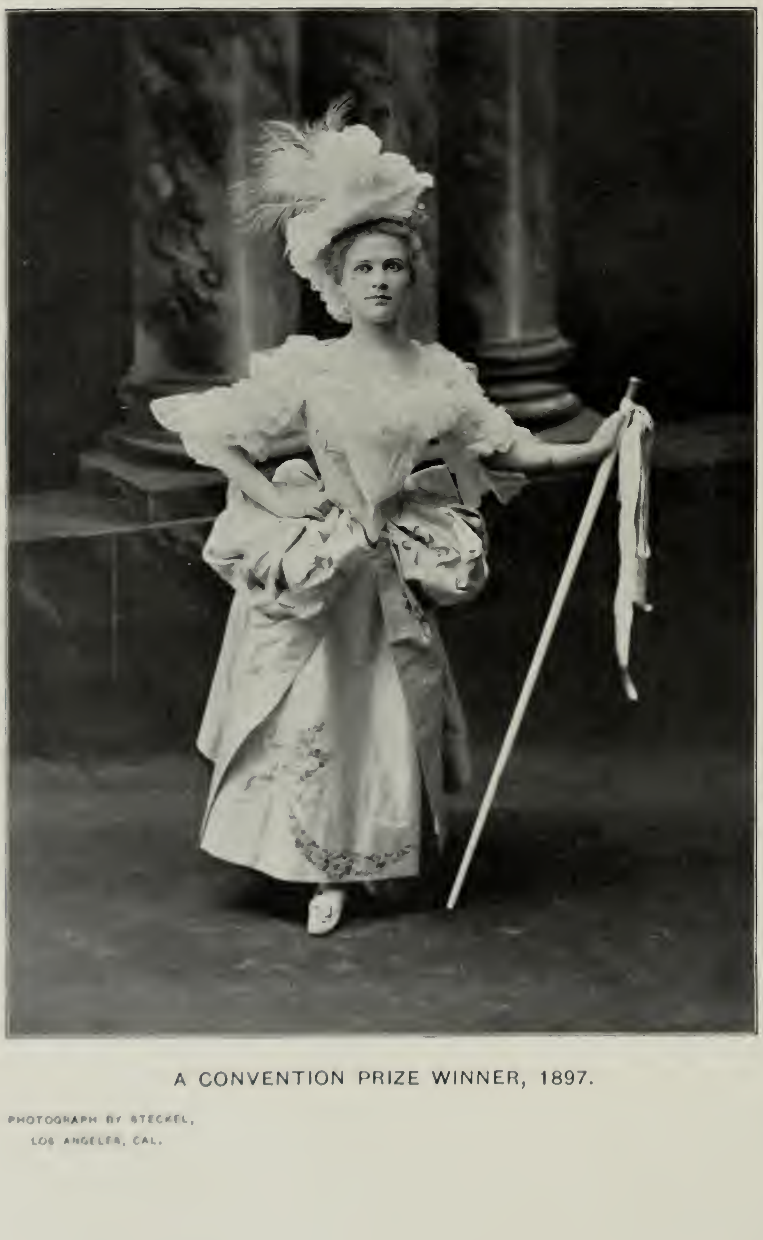

A CONVENTION PRIZE WINNER, 1897.

PHOTOGRAPH BY STECKEL,
LOS ANGELES, CAL.

ANTHONY'S

Photographic Bulletin.

EDITORS:

PROF. CHARLES F. CHANDLER, PH.D., LL.D.
W. I. SCANDLIN.

VOL. XXVIII. NOVEMBER, 1897. NO. 11.

ON THE FRAMING OF EXHIBITS.

IT is a matter worthy of careful study and attention to note the great difference and advantage an exhibit will present if framed in a characteristic and proper manner, even without the outlay of great capital, compared with its appearance if treated in a much more elaborate and expensive manner unadvisedly. A careful study of the various exhibits shown in the conventions and other collections of photographs will demonstrate at once to a thinking mind that taste and harmony go much farther to make up a pleasing *ensemble* than a great amount of elaboration or expense. The coming winter and spring will give the profession a capital chance to study further into this matter, with the idea of making a decided advance at the next annual convention. It was a matter of note at the last Convention that several exhibits attracted very much more attention on account of their artistic framing and hanging than on account of the intrinsic value of the prints themselves, and this, we believe, will be found to be almost universally the case. Perhaps in no other line of pictorial work is there a wider field for the exercise of taste and judgment, combined with a larger opportunity for variety, than is presented in purely photographic productions. The large number of tones obtainable on the various papers offer a choice in color and combination which will seldom be found elsewhere, and the work of some of our best amateurs may be taken as suggestions upon which a very effective scheme of framing may be elaborated. A capital opportunity to study effects and to experiment in this direction will be found in almost any studio, where small rooms are almost always available, and excellent practice could be obtained by a systematic decoration of the walls of one or more of these rooms, changing the scheme from time to time and studying the effect, not only upon the eye of the decorator himself, but also upon the taste of his customers. We believe that a systematic study of this sort will be found very profitable in more ways than one.

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ALUM, AND ALUM FIXING BATHS.

By Dr. E. Vogel.

GELATINE plates developed in hot weather have a great tendency to frill, by loosening of the film at its edges, from contact with the plate. This defect appears mostly during the washing after fixing, or, in the case of plates prepared with very soft gelatine, sometimes in the fixing bath. To remedy this, an alum or formalin bath is used, into which the plate is laid for a few minutes after developing or fixing. So-called alum fixing baths are also used, the latter very frequently in warm climates.

The simplest alum fixing bath is obtained, however, by mixing 1 liter of saturated solution of hyposulphite of soda with ½ to 1 liter saturated alum solution. This bath hardens the plate during fixing, so that frilling or dissolving of the film is completely avoided in subsequent washing, but it has the disadvantage that it secretes a fine sulphur powder, which has settled on the film of the plate and which must be removed by wiping off.

To avoid this disagreeable sulphur secretion, however, A. Lainer recommends preparing the alum fixing bath in such a way that the alum solution is first mixed with a solution of sulphite of soda, and then the hyposulphite of soda solution added. The sulphur secretion is thus completely avoided, but by mixing the alum solution with the sulphite of soda solution a considerable precipitate of clayey earth will frequently form, the neutral sulphite of soda being generally more or less alkaline. This secretion can, however, be avoided by adding to the sulphite of soda solution, before mixing with the alum solution, a small quantity of some acid. A completely clear solution, without any discoloration, is thus obtained. The composition of such a bath is as follows:

One liter saturated alum solution is mixed with 300 cubic centimeters saturated solution of sulphite of soda, which is acidified before mixing with 15 to 20 cubic centimeters glacial acetic acid. To this is added 1,200 cubic centimeters saturated solution hyposulphite of soda. An alum fixing bath will naturally fix slower than the ordinary fixing baths, and for this reason it is principally recommended for hot climates or on plates showing a strong tendency to frill or peel off. In most cases, the application of an alum bath is sufficient, which is preferably used after fixing and without any previous washing of the plate. A simple alum solution is, however, not sufficient, because sulphur would secrete in the film saturated with fixing soda; 1 liter saturated alum solution is, therefore, mixed with 300 cubic centimeters of a saturated solution of sulphite of soda, acidified before mixing with 15 to 20 cubic centimeters glacial acetic acid. With this alum bath, sulphur secretion is excluded, and it is also cheaper than the formalin bath recommended for hardening of the plates.

Translated by

H. Dietrich.

Items of Interest

PHOTOGRAPHY played a new part in the settlement of a case at law in a recent suit brought by a young Greek girl in one of the New York courts against the Metropolitan Street Railway Company. The suit for damages was based upon an accident which occurred to the plaintiff on one of the cars of the defendant's company, the plaintiff claiming that, as a result of the injuries, she had been practically helpless ever since. In the course of the trial, however, two photographs were produced, each made since the date of the accident, in one of which the plaintiff was shown in a boat on the lake in Central Park holding the oars as if in the act of rowing, and in the other was pictured as hanging clothes on a line in the rear of the house in which her mother lived. These photographs led to cross-questioning, which developed the fact that she had also made many pleasure excursions during the preceding months, which facts, when brought to the notice of her attorney, caused him to withdraw from the case. We believe this case to be novel, but it will, doubtless, have counterparts in the future.

* * *

THE BULLETIN would acknowledge with thanks the courteous invitation of the General Committee of the Photographic Salon to attend the press view of their fifth exhibition at the Dudley Gallery, Piccadilly, London, which, for obvious reasons, it was impossible to accept. In later years it may be possible to exchange in person courtesies of this kind, but decided advance will first have to be made in the speed of ocean liners, or some new means of transit devised, if the editorial duties remain as pressing as they now are on either side of the water.

* * *

THE *Overland Monthly* is offering a series of cash prizes for the best prints from negatives by amateurs. The competitions, which are to run through the whole year, are especially interesting from the fact that the final awards are to be left to the readers of the *Overland*, who will be furnished with voting coupons by which to designate their decisions. This experiment of leaving the awards to outsiders is an interesting one, and will probably commend itself to many amateurs who have not been fully satisfied with editorial adjudications.

* * *

THE new film works of the American Camera Manufacturing Company are now in operation in Northborough, Mass., the plant being equipped with electric light generated on the premises, furnished with two systems of water supply, and provided with blowers, electric fans and all appurtenances for the production of their output. The buildings are beautifully situated on the border of the Assabet River, surrounded by about 40 acres of the Company's land. Mr. T. H. Blair, the Treasurer, states that the works are capable of a very large output, but that a moderate start will be made at the beginning. Mr. J. D. England, who was formerly manager of the European Blair Camera Company's film works in England, is the chief chemist.

◆

THE four hundredth anniversary of the birth of Hans Holbein is arranged to be held in the Museum at Basle during the coming winter. It is proposed to place upon exhibition as many as possible of the works of this famous artist in the city where he spent a great part of his early life, and whose public galleries contain his best paintings and drawings. To these are to be added a large number from private collections and also a number of reproductions from his best works.

The exhibition opens in the early fall and will remain open until spring.

◆

AN inquiry, signed "Laboratory Worker," has been received by the BULLETIN, in which the question is asked as to what are the hydrometer equivalents of the speed marks of dry plates, to which we would reply that the speed marks referred to are not hydrometer test numbers, but rather the test numbers of the sensitometer or sensitive quality of the plate to actinic light, there being no connection between the two terms.

◆

AN article in another portion of this issue on "Storage Light" will be read with considerable interest, particularly in view of Professor Russell's paper, lately read before the Royal Society of Great Britain, as it seems to raise at once a question as to whether or not the effects therein described may not have been the result of the chemical action of certain ingredients used in marking the dark slide, rather than from the fact that the marking on the slide held in suspension, and later gave off, direct rays of stored light. The BULLETIN will be very glad to hear from its readers, and particularly glad if this item should start a line of investigation in this country on that subject, which seems to be prolific of great enlargement.

◆

AN unusual case of poisoning has lately been reported to the Brooklyn Board of Health, the victim being a two-year-old child, who, the week previous to his death, had been discovered with a tintype in his mouth, upon which he was actively engaged in extracting its chemical ingredients. Symptoms of poisoning immediately set in, and the trouble was diagnosed as metallic poisoning, which is thought to have been caused by the mercury and cyanide of potassium with which the tintype was treated.

THE subject of kite photography, which is being worked out in a very quiet and scientific way by Mr. W. A. Eddy, offers a field for important results in the future, particularly in view of experiments and operations in case of land warfare. Mr. Eddy's experiments have been carried on with more or less regularity since May 30, 1885, and have resulted in a large number of photographs of bird's-eye views of cities, parades, military manœuvers, etc., and seem to show a field for enlargement which may be worked upon with a good deal of profit. It is quite apparent that views made from a height of from 500 to 800 feet above the earth, and including the wide expanse of country which would naturally be taken in with a wide-angle lens, will furnish a bird's-eye view which it is impossible to obtain in any other way in the face of hostile movements.

◆

EXPERIMENTS are being made, and with a good deal of success, in the opposite direction from that above mentioned, namely, under water, and it is expected that the French government divers will soon be equipped with apparatus for photographing injuries to vessels below the water-line, where repairs are being made upon the naval ships. M. Bouton, a French scientist of prominence, has been very successful in this experimenting, having made a large number of views in the Mediterranean and elsewhere, some of them having been obtained at a depth of 75 feet.

◆

THE amateur photographers of Colorado are to be congratulated upon having obtained concessions which are quite unusual. The railroad managers of that State, having always been much interested in photography, and realizing the advantages to be derived from the prolific distribution of the views to be found upon the road, have agreed to make a half-rate to any part of the State to members of the Colorado Camera Club bound on photographic excursions, the same concession to last for all time. If the fact remains as above stated, we can confidently predict for the Colorado Camera Club unbounded success and large membership.

◆

BY the aid of photography, astronomy has again been the gainer, a new star of the twelfth magnitude having been discovered at Nice by M. Charlois in the constellation of Aquarius.

◆

THE Fine Arts Department of the Boston Public Library are fortunate in having started their extensive collection of photographs, and now have more than five thousand, most of which were obtained by Librarian Putnam during the past year abroad. They are rapidly being classified, mounted and arranged for exhibition, and will enable the Institute to broaden and extend the work of its Fine Arts Department very materially when finished.

PHOTOGRAPHERS' ASSOCIATION OF MICHIGAN.

A SPECIAL meeting of the officers of the Michigan Photographers' Association was called at Detroit on Tuesday, September 28, 1897. The officers present were: J. E. Watson, President; A. J. McMichael, First Vice-President; W. L. Smith, Treasurer, and E. S. Tray, Secretary. Ex-President Hayes, of the National Association, was also present. The meeting was called to order by President Watson, and the following list of prizes was decided upon:

PRIZE LIST.

To photographers outside of Michigan, special prize, Class A. For best portrait, one picture. First prize, $20 in gold; second prize, silver medal. Genre Class, Class B, one picture. First prize, $20 in gold; second prize, silver medal.

PRIZES FOR MICHIGAN ONLY.

Grand Prize, Class A.—Four pictures, 10 inches and larger. First prize, gold medal; second prize, silver medal, and third prize, bronze medal.

Class B.—Twelve pictures up to 10 inches. First prize, gold medal; second prize, silver medal, and third prize, bronze medal.

Class C.—Twelve pictures, no restrictions as to size, from towns of three thousand and under. First prize, silver medal; second prize, bronze medal.

Class D.—Landscapes. Six pictures, any size. One silver medal.

Class E.—Marine views. Six pictures, any size. One silver medal.

Class F.—Interior. Six pictures, any size. One silver medal.

Class G.—Commercial work. Six pictures, any size, one silver medal. Scientific photography, open to all, one picture. One silver medal. X-ray photography, one picture. One silver medal. Microscopic photography, one picture. One silver medal.

Genre Class.—Two pictures, any size. First prize, silver medal; second prize, bronze medal.

Special Prize.—Amateur photography. Three pictures, no portrait. First prize, gold medal; second prize, silver medal; third prize, bronze medal; fourth prize, diploma.

Entry fee, $1.

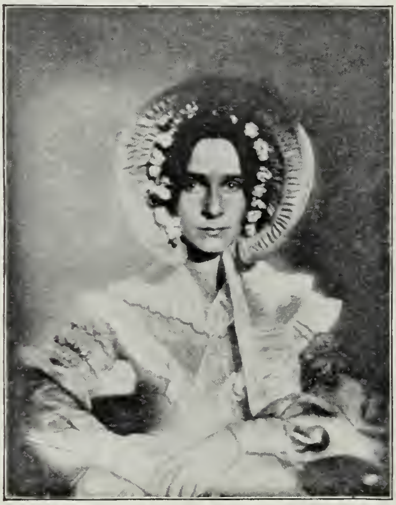
A. J. McMichael, First Vice-President, Detroit, Mich., will have charge of special prizes for photographers outside of Michigan. All correspondence concerning these prizes should be addressed to him. W. L. Smith, of Saginaw, will have charge of the special prizes for amateur photographers.

The Third Annual Convention of the Michigan Photographers Association will be held at Jackson, Mich., February, 1898.

E. S. TRAY, *Secretary.*

THE FIRST SUNLIGHT PICTURE OF A HUMAN FACE.

REFERRING to the brief mention in the last number of the BULLETIN of the first photograph of the human face, the BULLETIN takes great pleasure in reproducing herewith a copy of the daguerreotype of Miss Dorothy Catherine Draper, taken by her brother, Professor John William Draper, M. D., LL.D., early in 1840, together with a reproduction of a photograph of the same lady, made by her nephew, Daniel Draper, Ph.D., August 7, 1897, on her ninetieth birthday, and in connection therewith an extract from the *Scientific Memoirs*, by John William Draper, published by Harper Brothers in 1878, in which mention is made of the daguerreotype, and the claim advanced for priority. The matter, at this period of time, so remote from the demonstration of the process, is of great interest, particularly in view of the fact that the sitter is still alive and in touch with the progress of the art.



MISS DOROTHY CATHERINE DRAPER.
From Original Daguerreotype, 1840.

The original daguerreotype referred to is in the possession of the family of Sir William John Herschel, of England, and the original correspondence between Professor Draper and Sir William Herschel is very interesting. The following is a portion of Memoir XV of Professor Draper's book :

ON THE TAKING OF PORTRAITS FROM LIFE BY PHOTOGRAPHY.*

" *Historical Note.*—This Memoir contains the first published description of the process for taking daguerreotype portraits. Of late, since the introduction of collodion, this art has been much cultivated and improved. It now forms an important branch of industrial occupation. That it was possible by photogenic processes, such as the daguerreotype, to obtain likenesses from the life, was first announced by the author of this volume in a note to the editors of the *Philosophical Magazine*, dated March 31, 1840, as may be seen in that journal for June, 1840, page 535. The first portraits, to which allusion is made in the following Memoir, were produced in 1839, almost immediately after Daguerre's discovery was known in America.

" In the *Edinburgh Review* for January, 1843, there is an important article on 'Photography.' In that the invention of the art of taking photographic portraits is attributed to its true source—the author of this book. It says : 'He was the first, we believe, who, under the brilliant summer sun of New York, took portraits by the daguerreotype.

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* From the *Philosophical Magazine*, September, 1840.

This branch of photography seems not to have been regarded as a possible application of Daguerre's invention, and no notice is taken of it in the reports made to the legislative bodies of France. We have been told that Daguerre had not, at that period, taken any portraits; and when we consider the period of time—twenty or twenty-five minutes—which was then deemed necessary to get a daguerreotype landscape, we do not wonder at the observation of a French author, who describes the taking of portraits as '*Toujours un terrain un peu fabuleux pour le daguerreotype.*'

"Very soon after M. Daguerre's remarkable process for photogenic drawing was known in America, I made attempts to accomplish its application to the taking of portraits from life. M. Arago had already stated, in his address to the Chamber of Deputies, that M. Daguerre expected, by a slight advance, to meet with success, but, as yet, no account had reached us of that object being attained.

Miss DOROTHY CATHERINE DRAPER.
From Photograph, 1897.

"In the first experiments I made for obtaining portraits from the life, the face of the sitter was dusted with a white powder, under an idea that otherwise no impression could be obtained. A very few trials showed the error of this; for, even when the sun was only dimly shining, there was no difficulty in delineating the features.

"When the sun, the sitter and the camera are situated in the same vertical plane, if a double convex non-achromatic lens, 4 inches in diameter and 14 in focus, be employed, perfect miniatures can be obtained in the open air, in a period varying with the character of the light, from twenty to ninety seconds. The dress is admirably given, even if it should be black; the slight differences of illumination are sufficient to characterize it, as well as to show each button, buttonhole, and every fold."

THE SPEED OF PLATES.[*]

By Captain W. de W. Abney, C.B., D.C.L., F.R.S.

THE speed of a plate is usually understood to be measured by the minimum exposure that will secure a good printing negative, and we have extant numbers or expressions which are supposed to indicate such exposure. Let us, however, examine the question a little more in detail, and we shall find that there are various factors that have to be considered in ascertaining with scientific exactness the true speed of a plate.

To commence with one factor, we have the question of the intensity of the light that has to be employed with the plate. It has been imagined that lack in intensity may be made up for by a corresponding increase in time. That is to say, if a certain light requires an exposure of one second, another intensity of light, say $\frac{1}{50}$ of the first, will require an exposure of fifty seconds. Such a variation is often to be found in camera exposures, as, for instance, in photographing open views and interiors; or, if using a stop of *f*/8 in one case and *f*/60 in another; or, again, in using a pin-hole instead of a lens for securing a view. Now a pretty considerable number of experiments which have been published from time to time in the *Photographic Journal* or in the *Camera Club Journal* have, I think, fairly proved that, except in the case of very rapid plates, this assumption is not valid, and that even with very rapid plates, when the intensity of light is beyond that of ordinary daylight, the supposition cannot be maintained. But as it may fairly be supposed that we are alluding to exposures under ordinary conditions of daylight, we may take it that there is no reason to enter any *caveat* for these latter plates. With them it is plain sailing. For plates of medium rapidity or slow, the intensity of light acting on them has an important and practical bearing. If we take a negative, or expose a plate to a sensitometer with good illumination, and find that a large stop with a certain length of exposure is required, and then proceed to test it with a feebler illumination, it will be found that to obtain equal results the length of exposure required is greater than would be supposed to be necessary from the first measurement. The slower the plate, the less readily it responds to feeble illumination.

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[*] *The Optician and Photographic Trades Review.*

One point may be mentioned, and that is that when a plate is exposed for regularly varying times but with a fixed illumination, the gradation of the plate remains the same. The gradation is not the same, however, if the time of exposure is the same, but the intensities of illumination vary. This last is the condition under which exposures are given in the camera, and thus the gradation to be obtained with a plate and the assumed rapidity will be at fault if the latter be obtained by measurements made of densities obtained by what we may call time exposures.

This variation from the usually assumed law must therefore be taken into account.

The next *caveat* that has to be entered is the question of the temperature of the plate at the time of exposure. A good many years ago the writer pointed out that by heating a plate within certain limits the exposure required to produce an image might be very considerably curtailed. A recent long series of experiments showed that the variation which had been found "qualitatively" was confirmed by quantitative measurements, by noting the temperatures at which exposures were made, and comparing the results of exposures made for fixed times or fixed intensities. The variations observed in the rapidity of the same plates were most marked between freezing point and 100 degrees Fahr., and in timing an exposure between these limits it is evident that regard must be had to the temperature of the plate at the time. As a rule, a photograph is rarely taken at temperatures differing more than 30 degrees Fahr., and the necessary variation in exposure for this difference is not a large one. Still, for great exactness, it should be noted. We thus arrive at the conclusion that in accurately defining the rapidity of a plate the minimum intensity of light must be given as well as the temperature of the sensitive salt.

There is, however, one circumstance which requires to be taken into consideration, and that is the fact that for printing purposes it is useless to have more than a certain amount of opacity in a negative, and the bearing of this is almost self-evident. Suppose we have the light from the point of greatest illumination two hundred times that of the point of greatest darkness, it is quite evident, if a print will only show a range of about 30 to 1, that a good deal of the gradation in the original is useless. We may have a plate which will ignore the deepest shadows and content itself with registering the light from 200 to 6, or we may have a quicker plate which will register in printable gradation from 30 to 1, making all the highest lights practically of the same opacity. Both plates would be of a suitable speed for some purposes. It is of course here supposed that the negative is rendering the lights as opacities and in the same scale. That this is not always the case is well known, but as we are treating of speed and not of gradation, it is a fair assumption to make; and what would be called a perfect negative would have this quality.

To judge practically of the speed of a plate we ought to have some compromise to offer to the practical photographer for his landscape work. A comparison of rapidities by means of the camera is to be recommended. It is easy to prepare a graduated scale of squares in platinum black by means of the platinotype process. This scale ought to show white paper at one end and the deepest platinum black at the other, and, if desired, a still deeper black may be obtained by blacking a piece of paper on which platinum black has been deposited, by means of camphor smoke. Such a scale of gradation, if illuminated by daylight (or better still by the arc electric light if available), can be photographed on the two plates which it is desired to compare. It is quite probable that exposure according to the marked speed of the two brands of plates will not give negatives which are at all similar, but it will be easy to see which plate gives the longest and best gradation, and the slowest plate will be indicated by the lack of deposit on the image of the lightest black. The writer has often described the method which enables the amount of white light reflected from grays and blacks to be measured; and if the scale referred to has been so measured, a very fair approximation to the practical comparative speed of the plates will have been obtained.

Thus, suppose with one plate on development, bare glass, or rather the film without any practical deposit, represents a platinum black square which reflects only 4 per cent. of white light, and with the other it also represents a space which reflects 10 per cent. of white light, then the approximate rapidities of the plates will be as 10 to 4. This is in effect the plan which is adopted in Warnerke's sensitometer, but it has the advantage that the light used is that which is also used in ordinary camera exposures.

Some will say that this not a correct plan of obtaining the practical speed of a plate—that the measurement of the opacities should be the guide. The writer, however, believes that the measure of the intensity of light which, with a given exposure, will just *not* give a deposit, is the most useful test; for a great deal of opacity which may show gradation in a negative will be practically useless. For testing plates the writer himself has a standard scale of transparencies which he places in the camera in front of, and in contact with, the plate. The plate thus shielded is exposed in the camera to the light coming from a well-lighted white surface, sufficiently large, of course, to cover the whole of the plate or plates. By this plan he has been enabled to estimate the relative exposures required with a very great degree of accuracy—an accuracy, it may be said, which is closer than that given by the maker's exposure or speed numbers.

THE STRUCTURE OF THE NEGATIVE.

By R. E. Liesegang.

IT was a characteristic feature of the old collodion negatives that the silver portion was on the surface of the collodion film, the picture originated by the superfluous silver of the film being reduced by the developer, and the nascent metallic silver settling upon the exposed iodide of silver parts. In the inner part of the collodion film no iodide of silver is reduced, or blackened by deposits of metallic silver.

With the bromide of silver gelatine plate of the present day, it is different. The picture lies within the film; but the latter having quite a thickness, the picture does not occupy a plane. In mechanical photography this has frequently been felt very disagreeably.

For the formation of the dry plate negative, this circumstance is of importance, namely, that the developer does not come instantly in contact with all exposed bromide of silver parts, but has first to penetrate into the gelatine, to reach the deeper ones. This always requires a little time. At short exposure the light-ray will also not bring the bromide of silver into a developable condition at the lowest parts, as it will naturally lose in intensity by penetrating the opaque film.

On this I built up a theory last year, which, without regard to the purely chemical proceedings, is intended to make comprehensible a number of phenomena as follows; on a normal negative the bromide of silver has been reduced to silver on the surface of the gelatine film. At the very dark parts, however, the reduction extends much deeper into the film, and it may even reach the glass support.

The silver picture, therefore, represents a relief within the gelatine film, similar to the chrome gelatine of a pigment print which has not been developed.

This theory, according to my idea, could be proven by a microscopic examination of cross-cuts through the gelatine film of the finished negative.

For this purpose I used plates which had been coated with two and one-half times as much bromide of silver gelatine emulsion as ordinarily. A number of the same were subjected to different exposures, developed with various developers, and fixed as usual.

Then fine cross-cuts were made from the completely swelled film and examined under the microscope.

It was thereby established that very often the black silver was only present on the surface, while underneath there was the pure gelatine. Under particular circumstances (for instance, at a long exposure from the reversed side, as described further on) the deepest blacks will extend through the whole film.

The division between blacks and high lights was striking in showing how little the light ray was reflected sideways from the bromide of silver grains.

I gave up this method of examination, however, for the time, because I found another way which permitted with simple means the examination of normal and of (exceptionally) thin plates consisting in the gradual scraping off of the picture film.

The negatives were dried, and, with a knife held vertically, a fine strip of film was cut out. At another place the cut was made a little deeper, and so on, until only a very thin film remained on the glass support.

From a number of experiments, the following are the most characteristic :

I. A thick (that is 2½ times as thick as ordinarily) plate (No. 1) and a thin plate (thinner than ordinarily—No. 2) were normally exposed (fifteen seconds in the gallery) and equally developed with the ordinary hydrochinon developer. The picture on the thick plate was not stronger than the one upon the thin plate. On the thin plate the silver solution passed through to the glass side ; on the thick plate, to one-half.

The thick film is, therefore, at normal exposure and with hydrochinon development of no use.

II. A thick plate (No. 3) and a thin one (No. 4) were exposed for fifteen minutes from the reversed side (through the glass) and developed with the same hydrochinon developer.

The circumstance that the time of development necessary to obtain the same density was twice as long for the thick plate as for the thin one points to the slow penetration of the developer.

In both plates the silver reduction went to the glass side. But the thick plate had on the surface a uniform silver fog, originating in the too slow action of the developer.

III. Plates 1 and 3 show that the intensity of light is more and more reduced by penetrating into the opaque film, in consequence of which a normally exposed plate should always have in the depth a less dense picture, but richer in contrast.

If a thick plate is exposed from the reversed side much longer than necessary, the effect of over-exposure can be equalized by purely mechanical means. For this purpose the so-called Sandel plates, coated with several emulsions of different sensitometers, are used.

To test this, a thick plate was exposed for seven and one-half minutes from the reversed side (No. 5), therefore thirty times as long as the normal exposure. After a development of four minutes with hydrochinon, the negative had about the character of plate No. 1. After fixing, there was, towards the glass side, a gelatine film free from silver.

As could be expected, the penetration of the developer was nothing but purely a diffusion appearance. It is not influenced by the condition of the deeper film.

IV. A plate (No. 6) exposed just as long, and from the reversed side, was left for ten minutes in the hydrochinon developer. The result was a very strong picture. The reduction went to the glass support.

In this case, by too long exposure from the reversed side (hydrochinon development), the full bromide of silver value of the thick film could be used.

V. Quite different is it, however, if a plate is strongly over-exposed from the front. The negative becomes flatter and flatter. The reduction, therefore, passes less and less into the interior (Plate 7).

Here is, therefore, an obstruction to the penetration of the developer —and I suppose that on the surface of the over exposed plate a fine silver skin forms which obstructs the penetrating of the developer (or an effective substance of the same).

To say that the developer is too much exhausted on the surface of the over-exposed film is not sufficient to explain the appearance. By adding fresh developer, the effect of over-exposure could otherwise be removed. But the contrary is in fact the case. The action of the over-exposure can, for instance, be forced back by addition of bromide of potassium to the developer, weakening the reducing power of the latter considerably.

VI. The presence of the opaque silver skin is seen still better on plates which were exposed so long that solarization took place. A thick plate as well as a thin one were used, and by the first scraping with the knife the plates became transparent. The reduction was, therefore, limited to the very thin surface coating.

Probably the developer penetrates a little deeper at the less exposed parts than on those exposed to the full rays.

The ordinary solarization theory, that the light reduces the bromide of silver with short action, but that with longer action it oxidizes again the hypothetical silver bromure, gives no explanation for the limitation to the upper film.

The essential conclusions which may be drawn from these scraping experiments are therefore :

(*a*) After short exposure the picture lies only on the surface of the film, because it did not possess in the deeper layers sufficient intensity. After normal exposure the reduction in the shadows on an ordinary plate will penetrate to the glass support. At strong over-exposure the pictures lies again only on the surface.

(*b*) The character of the picture changes with the depth. With a normal negative the picture in the layers nearer to the glass are richer in contrast than those on the surface. This is an appearance which cannot be observed enough at intensification.

(*c*) Plates flowed thickly with one single emulsion may be used in place of the Sandel plates if exposed from the reversed side.

The above-mentioned theory of the structure of the negative is not advanced to explain all appearances. I have called attention before to the fact that all chemical proceedings were ignored by me.

The microscopical examination of the cross-cuts proved that the picture by no means can be so simple as, for instance, the cross-cut through an exposed bichromate gelatine film. It shows, on the contrary, that on the light parts of a normal negative many silver parts of a proportionately coarse grain were deposited, and separated from each other by wide, glass-clear spaces, while in the dark parts there were no such spaces. Probably this is due to the value of the emulsion in differently ripened bromide of silver parts. The coarser ones of the same react more upon a weak light impression than the finer ones. But for an explanation of the effect of over-exposure and solarization my theory (which is not opposed to my " Relief theory," but will be united with the same) is not alone sufficient.

Finally I might add to my previous explanation the following :

The over-exposure (provided that its action was not removed by an addition of bromide of potassium to the developer) can easily be recognized if the plate is looked at from the reversed side and held towards a black ground. A more or less strong positive is then seen which is, between the parts blackened by silver and the glass, still of a yellowish white body.

I have formerly taken this to be remaining bromide of silver, and have demonstrated its presence as a proof for my solarization theory.

In my scraping experiments this body was also present. The over-exposed negatives gave sometimes in the deep shadows several yellowish-white chips, while the upper ones were black. In the transparency both kinds were almost equal. The microscope shows also in the white and black the ordinary black silver.

The white, disappearing from the reversed side with the mercury intensification, therefore blackens, and, not being removable by hyposulphite of soda, bromide of silver is out of the question. It seems as if it was metallic silver, but a definite explanation I am not prepared to give at the present moment.

Translated by
HENRY DIETRICH.

SENSITIZED FABRICS.*

FOR the last two or three years now, we have had exhibited in the salon photographs on material which have, for certain effects, at least, the advantage over rough papers. To those who consider that "realism in art is the ideal with a smudge," there can be no better medium than fabric, because it can be obtained of a far rougher surface than any paper; and, further, it is extremely easy to stain the fabric or even use colored ones, and thus obtain any desired effect in this way.

There are, however, many who, while not believing quite the above dictum, yet desire to obtain something novel and striking in their pictures; and others, again, who may desire to use fabrics for printing on for decorative purposes—decorative either of their homes or personal dress. To such, sensitized fabrics present a new and almost untrodden field for experiment, for silk, satin, velvet, or linen may be sensitized and printed on without much trouble. It need hardly be pointed out that for small work, as a rule, the finer-grained fabrics are desirable, while for larger pictures the grain may be as coarse as fancy dictates.

Whatever material be chosen, it is advisable that it should be new, and, further, should be freed from the dressing with which too often such things are weighted. After the washing, it is advisable to allow the material to nearly dry, and then iron it with a fairly hot iron, so as to take out the creases as far as possible. When this has been done, the fabric is ready for sizing, which, although not absolutely necessary, is preferable, as it tends to keep the image more on the surface, no matter what may be the after-sensitizing. This sizing is effected by making a 1 per cent. solution of hard gelatine, and drawing the material through this solution, which, for convenience, may be placed in a porcelain dish. The fabric should then be hung up to drain and dry, and in this condition will keep for any length of time.

The printing process may be either with iron, silver, or platinum, and either printing-out or development in the case of the two latter metals. The iron printing process, which it is advisable to adopt, is that of the ordinary ferro-prussiate, which can be made as follows:

I.

Ammonio-citrate of iron	130 grains.
Distilled water	1 ounce.

II.

Potassium ferricyanide	110 grains.
Distilled water	1 ounce.

The ammonio-citrate should be in clear red-brown scales, without any brown powder, and the red prussiate must also be quite free from any adherent powder, and it is advisable to just rinse the crystals with water before dissolving. When the salts are dissolved, the two solutions should be mixed and filtered and kept in the dark. While these solutions will keep, it is advisable not to mix up more than is required, or otherwise they are liable to give impure whites. To sensitize the fabric, it should be placed on a sheet of glass, and the solution brushed over it by a camel's-hair brush (about No 19 being a convenient size). The solution should be placed in a measure or saucer handy, and as even a coating as possible given, if necessary passing the brush first in one direction and then in the other. The sensitized material should be dried as quickly as possible, in about four hours at the most; and while there will be no difficulty about this in summer, it may be necessary in winter to use a drying-box, or else to allow it to partially dry, and then iron with a warm iron between pure blotting-paper. Little need be said about the printing or development, the former being done as usual, and the latter, as is well known, by immersion in water. There is one point, however, which it is as well to remember, and that is that, with very hard water, it is advisable to use, first of all at any rate, water acidulated with hydrochloric acid to prevent the precipitation of basic iron salts in the fibers.

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* From *British Journal of Photography*, September 10, 1897.

Silver-printing processes may be divided into the printing-out and development methods, and of these there is no doubt that the former is to be preferred. For printing out, the simplest plan is to immerse the fabric in a 3 per cent. solution of common salt or ammonium chloride for five minutes, then to blot off between blotting paper, and then sensitize in a 5 per cent. solution of silver nitrate, and dry and print as usual. The disadvantage of this method is that the image is entirely in the fiber itself of the material, and therefore the resulting prints are somewhat flat and poor. A better method is to soak 40 grains of hard gelatine in 1 ounce of water for half an hour, dissolve by the aid of heat, and add 15 grains of ammonium chloride ; and having fastened the fabric by drawing-pins to a flat board, or else lay it on a sheet of plate glass previously talced, and then coat with the salted gelatine by means of camel's-hair brushes, then allow to dry, and then sensitize with a 30-grain solution of silver nitrate.

Coblenz has suggested recently the by-no-means new method of using a 1 per cent. solution of Iceland moss instead of the gelatine ; but, so far as our experiments have gone, this presents absolutely no improvement on ordinary gelatine.

There is one little difficulty in using printing-out processes which will very soon be met with in practice, and that is the stretching of the fabric during the examination of the progress of printing. To avoid this, it is as well to temporarily affix the material to a stout cord by india-rubber solution round the edges.

As regards the toning and fixing operations, little need be said, except that it is as well to plunge the fabric before toning into salt and water, which, converting the free nitrate into chloride, prevents the staining of the fiber to a great extent. This is followed by subsequent washing and toning in any ordinary gold bath ; such as is used for albumenized paper, only half the strength, will give good results. If a uranium and gold bath be used, and the fabric be deeply printed, rich warm black tones may be obtained, though these may be more easily obtained by using platinum, followed by gold, as has been lately recommended in our columns. The fixing bath should be half the normal strength, or otherwise the print loses too much.

Coating fabric with a gelatino-bromide emulsion is not quite such an easy matter ; but it will be found that if any ordinary bromide emulsion, such as is used for bromide paper, be employed with half the normal quantity of gelatine, it will adhere sufficiently well to the fiber to give good results. A better plan would possibly be to salt the fabric heavily with a fairly strong bromized gelatine solution, and then brush over with a solution of silver nitrate, and when nearly dry, again brush over with a solution of bromide so as to insure the absence of free nitrate. This will cause the bromide of silver to be more in the fiber, though it would be, of course, very slow.

* * *

All copy for December issue must be in our hands by November 15th.

JEX BARDWELL FUND.

BY request of the Committee appointed at the recent Convention of the Photographers' Association of America, to take in hand the matter of the Jex Bardwell fund, we publish the following circular and letter from Mr. James F. Ryder, which speak eloquently for the cause at stake.

The Committee having charge of this fund will be glad to receive contributions directly, or they may be sent to the Treasurer direct, whose address appears in connection with the circular:

"DETROIT, September 25, 1897.

"At the recent Photographers' Association of America Convention, the matter of recognizing the valuable services of old Mr. Jex Bardwell, years ago, in supplying the evidence necessary to defeat the bromide patents, was brought up, a collection was taken, and a subscription started for amounts from $1 to $10, to secure him and his invalid wife a home in some institution for the remainder of their lives.

"As is generally known, Mr. Bardwell gave the desired evidence in his possession without charge, at considerable cost of money and time to himself, thereby saving to the photographic fraternity and their descendants thousands of dollars. For those who have not yet subscribed, the opportunity is now presented of contributing towards the discharge of an obligation beyond computation, as a matter of justice to one who is entitled to more than he can ever hope to realize.

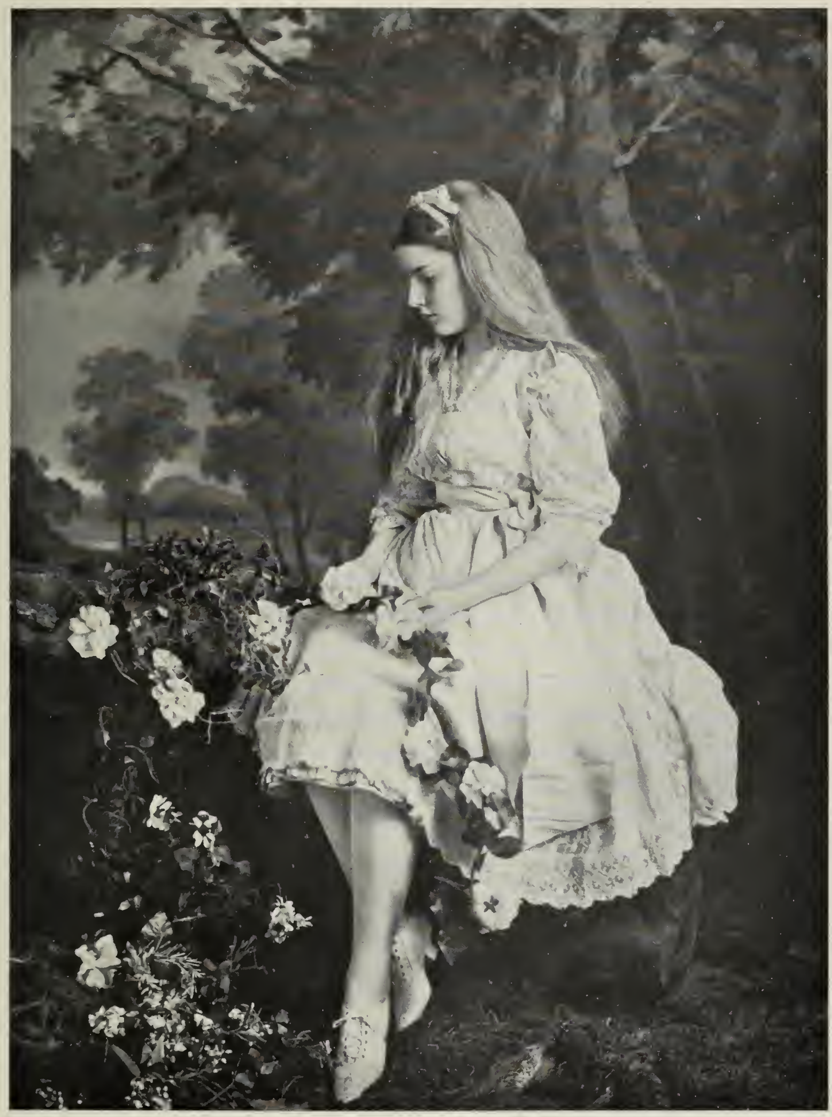
"G. CRAMER,
"ORVILLE C. ALLEN,
"GEORGE STECKEL,
"J. EDWARD RÖSCH,
"EDWARD L. WILSON,
"C. M. HAYES,
"J. F. RYDER,
"WILLIAM H. ALLEN,
"*Committee.*

"Please help us in this noble cause by sending any amount you desire to give to

"WILLIAM H. ALLEN, *Treasurer*,
"247 Jefferson Avenue, Detroit, Mich."

"To the few photographers in this country who do not know Jex Bardwell, what he is to photographers and to photography, I would say that he is an old man, quite unable to take care of himself and his aged wife; he is poor and without a home to shelter his gray head. He is an honorable, upright, modest and deserving man. In the past a scientific photographer; a walking encyclopædia of photographic chemistry and formulas pertaining to our art, and through his expert knowledge became the valuable friend to all photographers. And this was the way of it:

"The Cutting Bromide Patent, which had to do with the ambrotype, and pertained to the preparation of collodion, was regarded with sus



Photographed by Davis & Sanford.

AN ELECTRIC LIGHT STUDY.

For description see " Our Illustrations."

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picion by many photographers. It was a burden and an injustice to all men using collodion in photograph processes.

"In 1867, the first convention of photographers called in America had for its object to consider a united action to resist the operation of that patent and defeat it. This convention was held at the Cooper Institute in New York City, and out of it grew the National Photographers' Association. After a running fight of two or three years, New York, Philadelphia and Washington all taking a hand, without any decisive result, up rose, at Detroit, Mich., the hero of that patent defeat, Jex Bardwell, who carried in the 'inside pocket' of his memory the documents which overthrew the alleged validity of that patent, thereby saving thousands and thousands of dollars to photographers. He was never paid even the usual witness fees. 'That's what old Jex Bardwell did for photographers;' and now, photographers, ever appreciative and ready to acknowledge a plucky and unselfish act in their interest, have made a start to pool in their mite to build a home for him.

"This magazine will be a receiver of contributions for the fund, and will turn over to the Committee every basketful as fast as it accumulates. Let every photographer count himself 'a pebble upon the beach' in this matter, and send his mite in a sealed envelope, bearing his own name and address, written in ink, and the legend 'For the Jex Bardwell Home.' If he can put a bank-note in, and feel right about it, let him do it. If he thinks he can't quite afford it, let him put in a few postage stamps, what he would pay for a cigar, a concert ticket, or a game of billiards, and do it at once, before there is a chance to forget about it. Enclose this envelope in another and direct to this magazine.

"Let us make this old man and his good wife happy. It will cost us nothing to speak of, and it will warm his old heart to feel that thousands of friends from every end of the country have thought of his comfort and 'seen to it.'

"There is a church at Wethersfield, Conn., built of onions—that is, contributions of onions. I read about it when a boy, and it lived in my mind until I was a grown man, and when I came to see it I was almost disappointed that onions, built up in mortar, did not form its walls. A house built, at least in part, with postage stamps would be quite a novelty, and the photograph boys of this country are the lads to do it.

"Now, speaking direct to the boys, after you have mailed your 'stamps,' a sense of quiet happiness will pervade your heart, and you will find that a good-natured act is its own reward.

"I have sent in my own little budget and feel reasonably content with myself. That little parcel wants company; don't let it get lonesome, boys. Just notice how much better you will sleep after it. When you can feel that in that house your contribution paid for a shelf in the pantry, a shingle in the roof, a glass in a window, or some nails to hold parts together, you may pat yourself upon the back and call yourself a good fellow.

"The envelopes you send your offerings in will all be carefully kept and turned over to Jex, and the photograph boys of Detroit will club together and help him paper his best room with them.

"To all my friends who are in sympathy with me, and all those with whom I am not acquainted, but would be glad to be, let this letter be my introduction, and believe me,

"Yours truly,
"JAMES F. RYDER."

"CLEVELAND, Ohio."

PHOTOGRAPHIC ENERGY OF THE LIGHT OF FIREFLIES.*

A VERY interesting investigation of the luminous and other radiations emitted by fireflies has just been published in the ninth volume of the *Journal of the College of Science*, Imperial University, Tokyo, Japan, says the *Lancet*. The author, Mr. H. Muraoka, who writes in German, is Professor of Physics at Kyoto. He mentions that the spectacle produced by the fireflies about the middle of June is one of the sights of the place, and he states that the present inquiry was suggested to him by the resemblance of their light to that of fluorescent bodies, some of which have been shown by H. Becquerel to emit radiations possessing properties analogous to those of the Röntgen rays. The flies are most luminous from about 6 P. M. to 11 P. M. The experiments were made by placing a number of them, varying from three hundred to upwards of one thousand, in a small flat box, in which they were confined under a net made of hemp (*deren Wegfliegen mit einem Hanfnetz verhindert wurde*). The box also contained a photographic dry plate, in contact with which were plates of various metals (copper, aluminium, zinc and brass), all of similar thickness, sheets of cardboard, both entire and also with cruciform patterns cut out of them, being sometimes interposed between the sensitive plate and the metal and sometimes used alone with the sensitive plate. Thin wooden boards were also employed for the same purpose. The sensitive plate and the objects in contact with it were wrapped in several thicknesses of black paper and left in the box with the flies for two nights. The experiments were made in a photographic dark room, sunlight and artificial light being carefully excluded. The sensitive plates, though thus wrapped up, and additionally protected by metallic plates and layers of cardboard, gutta percha, cloth, silk, etc., were always more or less blackened.

Professor Muraoka makes frequent reference to papers published in *Nature* in the early part of 1896 by Dr. John Macintyre, of Glasgow, and Mr. J. J. Thomson. His experiments led him to the following conclusions: (1) The light of the flies in its original state behaves like ordinary light. (2) The light contains rays which pass through cardboard, metal plates, etc., and possesses properties analogous to those of Röntgen rays or Becquerel's fluorescent rays. (3) When the photographic plate is covered with layers of cardboard, it presents an appearance which calls to mind the permeability of iron to magnetic lines of force. (4) The properties of these "filtered" rays appear to be influenced by the materials through which they have passed, perhaps by the thickness of the materials. (5) The properties possessed by the radiations and specified under No. 2 are apparently non-existent, or at least undiscoverable until after "filtration." The Röntgen rays are similarly undiscoverable until after "filtration"—*i. e.*, through the glass of the Crookes tube—and "filtration" may, perhaps, afford a means of rendering the X-rays homogeneous. (6) The "filtered" firefly rays undoubtedly admit of reflection. Refraction, interference and polarization could not be demonstrated, but Professor Muraoka is of opinion that they take place. (7) The "filtered" firefly rays seem to resemble Becquerel's fluorescent rays in possessing properties intermediate between the ultra violet rays and the Röntgen rays.

**British Journal of Photography.*

THE STIGMATIC LENS.

THE following interesting article is reprinted from a recent issue of *The Railway Supplies Journal* (London):

"There is no gift which science has bestowed upon us that belongs more distinctly to the Victorian age than photography, and it may well be doubted whether any has rendered greater service. Any really accurate estimate of the comparative value of scientific discoveries is, of course, impossible, but in every department of life we are so immensely indebted to photography that few, we think, will be inclined to quarrel with the opinion we have expressed. Still less will it be questioned that in connection with no art or science have greater advances been made, or has more enthusiasm been shown on the part of its devotees. At no period since its introduction has any long time elapsed before some new discovery has been made, or some fresh step taken in the advance towards perfection, and at a stage in this progress when it might be thought that the goal had been almost reached the discoveries and improvements seem to become more numerous and valuable.

"One of the last of these is the Dallmeyer stigmatic lens, and it is by far the most interesting and important that has been heard of for a long time. The firm of Messrs. J. H. Dallmeyer, Limited, the chairman of which is no less a personage than the Earl of Crawford, K. T., F. R. S., has long been distinguished for its services to various branches of optical science, and photography is greatly indebted to it for many kinds of improved apparatus; but the invention now to noticed transcends, we believe, all its predecessors in the interest which it has awakened in the photographic world, in the distinction which it has won for British photography, and in the permanent value which will be attached to it.

"The scientific department of the firm's business is under the management of Mr. Thomas R. Dallmeyer, the son of the distinguished founder of the firm, and associated with him, for some years past, has been Mr. Hugh L. Aldis, B. A. Cantab., and to these gentlemen belongs jointly the credit of the new lens. We are informed that for some three years they have been engaged in investigations and experiments with the object of producing a lens that should exceed in intensity any of its competitors, and at the same time excel them in the qualities known as flatness of field and freedom from astigmatism. In this they had no easy task, since the German opticians, Schröder, Zeiss, Goerz and Voigtländer, had achieved such great things that it seemed a vaulting ambition indeed to seek to excel them. Moreover, what added to the difficulty was that this must be done, if done at all, without infringing the numerous German patents. In spite, however, of all difficulties and limitations, Messrs. Dallmeyer and Aldis succeeded in attaining their object, and we are informed that the stigmatic lens has greater rapidity and covers a larger angle than any of the known anastigmatic lenses, whether of British or foreign make; and that the dangers just referred to have been avoided is proved by the fact that the invention has passed the patent offices of both Germany and the United States.

"Advantage has been taken of the remarkable properties of the new Jena glass, giving correction of astigmatism, and to this, as the inventors admit, the success of the Dallmeyer lens is, to a large extent, due; but it is in the method of correcting spherical aberration that the novel features of the invention consist. The method of doing this is thus described in a recent number of *Photography:* 'The front is made up of a double convex joined to a double concave, the back being like it. But here comes in the wonderful factor that has achieved the sought-for result—a little air space separates the cemented combination from a very thin flat meniscus. It is a very thin glass, not excelling in thickness a very moderate spectacle lens. Contrary to what may be considered orthodox belief, the reflecting surfaces extra have been proven to have no deleterious or appreciably evil effect. The correction for astigmatism is perfect and charming, and with it all is gained an intensity of *f*/6.' The onus of this, to quote the editor of the *Photographer's Record*, rests on the little convex meniscus air-space in the back combination. It is a remarkable discovery, and carries with it something like a suggestion of magic.

"Another advantage is this, that whereas usually, in employing doublets, the use of one combination alone as a single lens has necessitated such an extension of the camera as produces instability and other evils, the Dallmeyer Lens is free from this objection. Front and back combinations may, we are told, be used as usual, but the front combination may be screwed into the back cell, which will leave the diaphragm in front, the focus being only half as long again as the ordinary combination, and working at about *f*/20. This gives a good narrow-angle landscape lens. The back combination itself may be used as a very long focus landscape lens, giving excellent definition with a large aperture.

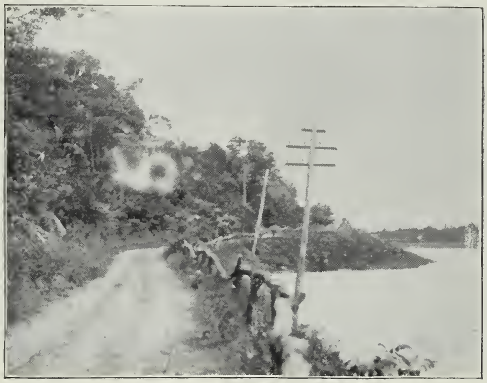
"The points of the Dallmeyer Stigmatic Lens have been thus summed up by one of the authorities already quoted: At its full aperture of *f*/6, it will cover with the most perfect definition a plate the next size larger than that for which it is scheduled. For instance, the half-plate lens will, at *f*/6, absolutely cover a whole plate. At *f*/6 the same lens will give perfect definition over a 12-inch by 10-inch plate, with, however, a slight falling off in illumination at the corners. At *f*/22 the illumination is perfect on the 12-inch by 10-inch, and the definition, as before, absolute.

"The lens has been tested in every possible way by photographic experts, who are unanimous in their praises, characterizing it as the lens of the day, and affirming that it has beaten all its competitors, whether 'made in Germany' or elsewhere. It is further declared to be essentially a 'universal' lens; that is, alike suitable for the most rapid work, for copying, for landscape, architectural, and general purposes. It is undoubtedly one of the greatest boons ever conferred upon photographers, and is certain to be appreciated by them as it becomes known. Messrs. Dallmeyer are to be heartily congratulated on their success."

STORAGE LIGHT.

By James Shepard.

It is well known that if a piece of printed white paper, for example a newspaper, be used to place between sensitive dry plates in packing, the negatives made therefrom will clearly show the printing on a blackened ground. Most photographers when asked if they ever packed news paper in between plates with the above result will say that they never did so but once. It is thought that the unprinted portion of the paper, being white, absorbs or stores up light which is given off after packing the plates in the dark sufficiently to change the plate, while the printed portion, being black, absorbs no light, and therefore does not affect the plate. It may thus be said that the newspaper printing on the negatives is produced by storage light. Others claim that the imprint is caused by the action of chemicals in the paper, and this may sometimes be the case, for I once had the print of a newspaper transferred to some negatives by placing the paper between them after they had been developed and dried. In such a case it is clear that something besides light must have changed the plates. It is, however, quite reasonable to believe that white paper may absorb and give off light enough to perceptively affect a plate, and certainly the plates thus affected by newspapers are just exactly such as would be made by protecting portions of a sensitive plate in the form of printed matter and then exposing the plate.



Mr. J. E. Atkinson, of the New Britain Camera Club, has recently had an experience that demonstrates the production of figures on sensitive plates by means of storage light. The black slides of his plateholders are numbered by figures painted in white, the paint being artist's flake white. He had many negatives more or less indistinctly fogged, and for a time did not know the cause, but finally one negative showed in the foliage a distinct figure five, a print of which is here reproduced. It should be turned on one side to read the figure. In this particular case the slide was placed on the camera with the marked side in bright sunshine while he was making the exposure on the landscape. The slide was inserted in the holder with the figure "5" on the inside, facing the plate. There was, of course, no contact of the figure or paint with the plate, so that chemical action was impossible, and the only way that the figure could have been transferred from the slide to the plate was by the light stored up in the white paint and given off after the slide was inserted in the holder. The figure happened to come directly opposite foliage, the part of the plate least affected by the landscape exposure, and therefore its image clearly appears.

In both examples here given of sensitive plates being affected by laying them away when opposite a white and black surface, the negatives were blackened where the plates faced white, and were unaffected where the plate faced black. This indicates that the newspaper marks, as well as the figures on the plateholder slide, were photographed by storage light.

OBITUARY.

WE have to record the death of George W. Statler, of Johnstown, Pa., who died on the 20th of September, at the age of sixty-two years. He had been for several months in failing health, never having fully recovered from injuries and exposures received during the great flood, on which occasion his wife and two children perished. He was one of Johnstown's most esteemed citizens, and a prominent and well-known photographer in that locality.

* * *

Mr. THOMAS D. BOWRING, one of the oldest residents and best known photographers in that part of the country, died at De Pere, Wis., on the 7th of September. Mr. Bowring was born in England, but had been in De Pere since 1869.

* * *

By the death of Mr. D. W. C. Hoover, of Buffalo, N. Y., the profession loses one of its best known members, and one who was probably more familiar with and better informed on photographic chemistry and matters pertaining thereto than many of the craft were aware. Mr. Hoover's death was very sudden, he having been stricken with apoplexy while on a pleasure excursion. His name has been connected with a large number of photographic patents and improvements during the last two decades. We understand that arrangements have been made by which the products of his factory will continue to be put upon the market under the supervision of those who have worked immediately with him in their manufacture.

By the completion of the Yerkes Telescope at the astronomical observatory of the University of Chicago, which was formally dedicated during the latter part of October, an important factor has been added to the scientific equipment of this country. The magnificent telescope, the largest, we believe, ever made, represents the best skill and highest achievement of the Clark laboratory, and is expected to penetrate deeper into the mysteries of the atmosphere than any other instrument in existence, not excepting the famous Lick refractor.

The University of Chicago is to be congratulated upon the acquisition of such a valuable instrument.

RAMBLING REMARKS AND SUGGESTIONS.

By James G. McCurdy.

No matter how careful a person may be, it sometimes happens that his exposed and unexposed plates get mixed. Usually it is simply a matter as to which of two plates has been exposed, yet at times it is more serious, involving a number of plates. While it is true that an unexposed plate can be used after developer has been upon it, if it is washed thoroughly and not kept too long, it is also true that such a plate rarely yields as good results as it would have done had it not "got mixed up," while the trouble and uncertainty experienced whether the plate exposed is wet or dry keeps nearly every one from trying it.

When I first got two plates mixed, I went to a professional friend for advice. I was greatly surprised to learn that there was no way by which a person could tell whether a plate had been exposed or not until a trial was made at developing. The advice he gave me was this: Try to figure out by any way possible which of the plates has been exposed. When downright certain that you have the matter solved, *develop the other plate*, and nine out of ten times it will prove the right one. I followed this advice with but indifferent success until I thought of a better way. This is to apply developer with a bit of sponge or the tip of the finger to about an inch of the end of the doubtful plate. A few seconds will suffice to show whether the plate has been exposed or not. If it has been exposed, the plate can be fully developed; if not, it can be taken out, dried, and be as good as new, as very few negatives cannot stand a loss of an inch off the end. Four by fives, or under, are not worth bothering about. Of course, the only proper way is to be so careful in making exposures that plates are not mixed up. All holder slides should be plainly marked, and then the chances of getting muddled are reduced to a minimum.

After an outing or picnicking, when the pictures there taken are finished and handed around, how often sympathy is expressed for the unfortunate who took the views, because he is left out of the groups. That was my predicament before I began to experiment with my home-made shutter. Now I am able to be in any group I want to, and still manipulate the camera. My shutter is a gravity drop, the slide being held with a pin. I carry along a spool of strong black thread, the end of which I fasten to the pin, after the focusing is completed and the shutter set. The thread is passed through a bent pin fastened to one of the tripod legs, and carried to where the group is arranged, care being taken that the thread does not get entangled and draw the pin prematurely. When all is ready, a slight pull on the thread draws the pin, the shutter drops and the view is taken. Almost every hand camera can be so arranged that snap and time exposures can be made in a like manner.

I wonder if there is an amateur in the country who has taken part in all the various photographic contests that have been held this year. If so, he has been kept busy, for their number is legion. Magazines and manufacturers have held these events, and all announce that they have been highly successful. While many of these contests prove enjoyable and profitable to the participants, it must be remembered that a certain proportion of them are held by magazines simply for the purpose of booming their circulation, the benefiting and uplifting of the photographic art being a very secondary consideration. Unless one is a subscriber to the periodicals in question, he gets absolutely no benefit from taking part in their competitions, as a postal acknowledging receipt of his pictures is probably all he will ever hear of it. Of course, there is always a possibility that one will win a prize, but that is a chance so remote that it is hardly worth considering. To my mind it is much better to take part in only one exhibit or contest during the year and to send in the very best that one is capable of, rather than participate in a number and have time only to get together second-rate exhibits.

Some amateurs have a practice of throwing the blame of their failures upon the shoulders of the manufacturers or stock dealers. "My camera is out of whack," or "That last lot of plates was N. G.," are among the many remarks that we hear. While it is true that it sometimes happens that a defective camera, or a damaged lot of plates or paper, gets on the market, this is extremely rare. In nine cases out of ten the fault lies with the user of the goods. The blunders made by beginners who think they have mastered the art of photography would make a large book, indeed. To endeavor to lay the cause of one's failures upon the shoulders of others is unmanly, and, what is more to the point, never deceives anyone but him who practices it. It is my opinion that the best of fellowship should exist between the maker of photographic goods and the consumer. It is due to the untiring efforts of the manufacturers that picture-making has become possible to the masses. One has but to look at the bulky and expensive apparatus of a few years ago to see what vast improvements have been made. It is not so long ago that a horse and wagon were required to transport an outfit that can now be carried readily in the hand. It had cost years of experiment and a vast outlay of money to bring about this change, yet prices all along the line have been greatly reduced, enabling a person of very limited means to embark in the fascinating art.

Should any one desire to experiment a little in printing methods, I would suggest that they try double printing. Individual judgment will show how many pleasing effects can be made, and quite a bit of advice on the subject has been given through the magazines, yet I cannot refrain from giving a method I practice in printing in borders. Lay a piece of clean glass in the printing frame, and upon it place small pressed flowers, a bit of fern, four-leaved clovers or sea moss, care being taken that these objects are arranged so as to form a harmonious border to the picture which is desired. Upon the objects lay a piece of opaque paper the size and shape you desire your picture to be, and upon the whole place a piece of printing paper. Print deep, when the figures will show white upon a dark ground. The part of the print covered by the mask, of course, will show pure white. The negative containing the desired view is now placed in the frame, and a mask to shield the portion of the print already obtained placed upon it. The print is again placed in the frame upon the mask and the negative printed from, the result being a view in the center of the print, with a border of white impressions upon a dark field surrounding it. I find sea moss makes the most pleasing effects. Double printing can be used to great advantage where one has a negative with a defective sky. By vignetting carefully and using judgment in selecting two plates that harmonize, the work can be so skillfully done that one would never know that this course had been pursued. Above all things the amateur should endeavor to avoid prints having the sky represented by a glaring patch of white, and by restraining the sky with bromide of potassium while developing, or double printing afterward, this can be obviated.

A FEW HINTS ON MOUNTING AND FINISHING.*

George Rau.

TOO little attention is paid to the best means of mounting and finishing photographs. In the early days of the art the prints were attached to the cards by their outer margins only. It was feared that the paste employed might injure the photograph, and the truth is many antique prints so mounted have only faded at the parts touched by the mountant. But in practice such a method could not be carried out. Prints mounted partially in this way have not the same finished appearance as those completely attached over the whole surface of the mount.

The necessity of using a mountant which shall have no chemical action upon the print is apparent.

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Starch paste, on the whole, is the best material, and the one generally employed. It is very clean, easily made, and does not set too quickly, and may be applied without fear of drying before it can be applied to the mount.

The dry starch should be smoothly mixed with cold water to the consistency of a thick cream, and then boiling water poured on it until the required thickness is attained, stirring constantly while pouring the hot water. When cool, it is ready for use after removing the skin formed over it by cooling, as this, if mixed with the body of the starch, would cause it to be lumpy. Some kinds of starch require boiling. If lumps should form in the starch, it must be strained through cheesecloth.

When photographs are to be mounted on paper or in books, every care should be taken to prevent the paper from cockling or puckering up, and if the prints are fastened to the paper over their whole surface, a quicker drying material should be used than starch. Some employ fish glue, but the acid employed in the solution of the glue acts most disastrously in a very short time upon the picture, and should not be used, even around the margins. Perhaps solution of india-rubber in chloroform would be preferable.

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* *American Journal of Photography.*

All prints should be carefully trimmed, so that no ragged edges appear or irregular shapes; and if the prints are mounted dry, they may be made flat by drawing a thin smooth edge across the back.

To mount a wet print, it should be laid upon a smooth surface, face down, and the superfluous water squeezed out, and the paste applied over the back, taking care that every portion is covered with the paste. It is then picked up with the point of a knife and applied to the mount. Very little experience will enable any one to place a print correctly on the card without any marks or guides. Albumen silver prints may be rubbed down after mounting by placing a blotter over them, and passing over them with a hard piece of wood made for the purpose. The blotters employed should be of the variety which is free from lint.

Albumen prints are dried between blotters, but high gloss prints must be allowed to dry spontaneously; and, when mounted, cannot be rubbed down, but should be gently brushed over with a soft silk sponge, dampened. If left to dry with face down, the print is not as likely to curl up when dry; but if this plan is adopted for high gloss, care should be taken to prevent their sticking. Platinum prints do not require any particular care in drying, and may be placed between blotters. Bromide prints, however, must be treated like high gloss prints.

To mount prints on stretchers. After having stretched the muslin on the frame, paste its surface thoroughly with the starch paste, and apply it to the pasted print, and rub down with a soft sponge as before.

Photographs mounted in what is called optical contact with the glass have a very finished appearance To mount prints in this manner, make a solution of gelatine not too strong, about 60 grains to 3 ounces of water, and filter it while warm through muslin, and pour it into a flat dish. Immerse the print into this face downward. Place in a perfectly clean and clear piece of glass under the print, and then carefully withdraw both. Squeeze all superfluous gelatine from the print and set aside to dry.

A few words on spotting may not be out of place, as many an excellent print is marred by careless spotting where no pains are taken to match the color, and the result looks like an old patch on a new garment. One would imagine there should be no great difficulty in spotting a photograph, but many fail dismally in doing it clearly and neatly. The first consideration is the color.

Prints on albumenized paper, gelatino-chloride, collodio chloride, high gloss as they are called, may be spotted with a mixture of india ink, indigo, lake and sepia, warm and colder, according to the tone of the print. This must have a small amount of gum arabic added in order to repeat the surface of the paper.

To spot platinum or bromides, the color is india ink and neutral tint mixed without gum.

To spot carbons, use venetian red, a little crimson lake and antwerp blue. The color of red carbon is rather deceptive. There is a bluish tinge in it. Gum and oxgall must be added, as the surface is somewhat slippery. Of course, other colors than red carbon are matched with different pigments.

The color should be placed right on the spot, and not to the side of the white space. A little practice will enable you to take up the proper amount of color. The spotting-brush should be examined to see that no straggling hairs project. A print is not spotted when the black speck is substituted for a white one. The blank must be made invisible, and this can only be done by correctly matching the tint. It is best to use fresh rubbed-up color, as the tint may be thus easier matched.

In burnishing, the best lubricant is castile soap, applied with a canton flannel rag. Or the soap may be dissolved in alcohol, by which the unpleasant escape of soap particles is avoided. The burnisher should not be so hot for high-gloss prints as for albumen, as the heat is likely to change the color. The prints should not be burnished while too damp, for obvious reasons; but if dried too long a time it is more difficult with albumen to get a fine polish.

LOCAL DEVELOPMENT.

By C. Welborne Piper.

IN direct line with the article on " The Use of Citrates in Development," which appeared in the October issue of the Bulletin, is the following, which is reprinted from the *Amateur Photographer* of September 3, 1897.

" It is unnecessary to dwell upon the advantages of local development, but it may be as well to summarize the cases in which it may be resorted to before explaining the method by which it can be safely carried out. In the case of negatives it is employed for the purpose of bringing out detail in under-exposed portions of the image. A negative in which the shadows are under-exposed may, however, be either normally or over-exposed in the lights ; and while in the former case it is only necessary to force up the shadows, in the latter the lights must be at the same time held back. The early stages of over-exposure are the only ones likely to be met with in conjunction with under-exposure, excepting with very abnormal subjects, and so we must be prepared for either excessive density and halation or moderate density and general fog around the high lights.

" In the case of positives (lantern slides or bromide prints) defects in the negative are, or should be, as far as possible compensated for by dodging in the printing—that is, by screening some portions of the subject or concentrating the light on others. It is, however, almost impossible, excepting with a printing-out process, to produce exactly the effect required by these methods alone, so they must be supplemented by local development. In such a case we have to deal with unequal or irregular exposure, one portion of the subject being under-exposed relatively to the other, though no part is seriously under or over exposed. The application of local development is very easy in such cases, and its advantages very great, but the system of development must be modified to produce black or gray tones, or to produce an image that will be amenable to a uranium or other toning bath. It is, of course, necessary to determine with certainty the actual state of the exposure before applying any local treatment, and there is, perhaps, no more certain or safer method than the following. In the case of a negative, apply a normal developer, and the moment the higher lights begin to appear, pour off the developer and fill up the dish with plain water, flowing it carefully but quickly over the plate in exactly the same way as a developer. If dealing with a positive, proceed in the same way, but do not wait for the appearance of the image. Rock the dish gently three or four times, and then substitute the water for the developer. Now put the dish down and watch the progress of events. The image will, as a rule, appear very quickly, so it is necessary to watch it closely. If the various tones of the image appear in steady succession, from the highest down to the lowest, and not too rapidly, there is nothing wrong ; the water should then be quickly poured off and development continued in the ordinary way. If under-exposure exists, its effects will be very apparent and its locality obvious. If the highest tones appear almost simultaneously, but the lowest ones fail to put in an appearance, local under and over exposure are both indicated. General over-exposure will be shown by the almost instantaneous appearance of the whole image, and in such a case local development is of no use.

" If local under-exposure is indicated, take a large soft camel's-hair brush, dip it in the developer, and paint over the under-exposed part of the image while it is still under water. If no effect is produced by a repeated application, strengthen the developer and try again. If there is any image capable of development it can be brought out in this way, failure simply meaning that exposure has produced no effect. The under-exposed portion of the image must be brought up by brush treatment only, until as a whole the image looks satisfactory. At this stage the developed image, though in appearance it may be fairly dense, is really so slight that it will almost disappear in a fixing bath, and much greater density must be obtained before fixing is possible. This extra density may be obtained by reapplying the developer in the ordinary way, by working up the whole of the image with the brush, or by intensification. If the high lights have shown any indication of over-exposure we must avoid too much density, and also beware of developing the halation which lies at the bottom of the film. The best course, then, is to obtain as much density as we can safely attempt by brush treatment and finish with intensification. If over-exposure does not exist, and we finish by development, a little more brush work will be necessary in the shadows, for otherwise they will not gain sufficient density. Local development should, in fact, be continued until the image appears flat by reason of the over-development of the shadows ; the necessary contrast will then be gained in the after-development, which has a much greater effect in the lights than in the shadows.

“After-development is absolutely necessary with positives if black tones are aimed at. Gray tones can be obtained by finishing with the brush only, or by applying a weak after-developer. Black tones cannot be obtained safely if the print is in any part over-exposed. It is best in such a case to be content with gray tones and afterwards either intensify or tone the image.

“There is not the slightest risk of producing stains or brush marks so long as the brush is only employed under water, and the water does not appreciably hinder the effect of the developer when thus applied ; it even in many cases appears to accelerate it. If the image is finished by brush treatment only, it may show traces of unequal density. It is therefore best to finish by applying a developer modified, if necessary, to the whole image. The intensification referred to as necessary in the case of local over-exposure may be carried out by applying a powerful redeveloper containing a large proportion of a citrate.”

OUR ILLUSTRATIONS.

THE frontispiece of this issue is a reproduction from one of the Convention prize collections in the Western Division, Class A, by Geo. Steckel, of Los Angeles, Cal., and does much to demonstrate the reputation which this artist has already built up for work of a very high character. The reproduction, while we consider it a very good one, of course loses in value very considerably from the original.

* * *

THE extremely dainty little portrait on page 347 is the work of an amateur, Mr. A. W. Kirsch King, of Michigan City, Ind., and shows great familiarity with the use of the flashlight. Mr. King writes that this exposure was developed with metacarbol.

* * *

THE child study facing page 348 is an example of what may be done under extraordinary conditions, a short history of which we give herewith. The negative was made by Messrs. Davis & Sanford, on Climax plate, late at night, by the use of one of the new 10,000 candle-power Thompson electric lamps, in connection with the Clinedinst system, carried in stock by our publishers. The exposure given was only two seconds, the lens used having been one of the new Series No. II, *f*/6 Dallmeyer stigmatics. After development with metacarbol the plate was treated with stereos, for hardening the film ; it was then dried over a gas flame in nine minutes. The print from which this illustration was made was obtained by twenty-four minutes' exposure to the same electric light which produced the negative, the result being a fully timed print on Aristo Platino.

Messrs. Davis & Sanford, who handled the light, express great pleasure at the manner in which it works, and predict for it great possibilities, which we believe are evidenced by the results obtained.

SOCIETIES

THE Salon Exhibition of the Detroit Camera Club is announced to be held at the Detroit Museum of Art November 18th, 19th and 20th, which is announced as being for the purpose of "the promotion and diffusion of photographic art education among the people, and for the encouragement and recognition of all earnest workers, who, possessing artistic instincts, are ever laboring to produce, by photographic means, pictures that are art reproductions in the highest sense." The exhibit is to be open to all photographic art workers, whether professional or amateur.

Full information and blanks may be obtained from Mr. O'Brien Atkinson, secretary, 17 Rowland street, Detroit, Mich.

* * *

WE received too late for insertion in the October number, notice of the exhibition of amateurs organized by *La Vie Française*, to be held in Lyons, France, October 15th to November 15th, but shall hope to have a report from the exhibition for a future number.

* * *

THE Second Exhibition of Amateur Photography, under the direction of the Case Library, Cleveland, O., is announced from November 1st to November 6th, inclusive, and a cordial invitation extended to amateur photographers, to be represented by contribution or in person. It is further stated that an exhibition of the choicest pictures of this collection, together with an exhibition of photographs loaned by the *American Amateur Photographer*, will be held in December.

Information regarding this exhibit also came too late for insertion in the October number.

* * *

THE second competitive print exhibition of the Central Camera Club of the Y. M. C. A., of Brooklyn, was held during the week commencing October 5th, and was very creditable in all ways, being a distinct advance over previous exhibits. A tasty catalogue of exhibits was distributed, containing, in addition to the usual catalogue matter, a historical and descriptive sketch of the Club from its beginning, and a half-tone illustration by its President, Mr. W. H. Lowery.

PHOTO-CERAMICS IN THREE COLORS.

By P. C. Duchochois.

(*Concluded from last number.*)

DEVELOPMENT.—The development can be done by diffused daylight. It is a very simple operation. On its removal from the printing frame, the plate is placed on a large white cardboard, or, better, in a very shallow box (about 2 inches deep) made with this material, and the film allowed to absorb moisture for, say, two minutes; then a certain quantity of the vitrifiable color ground into an impalpable powder—this is important—is thrown upon it by means of a pepper box. This done, one gently rubs it all over the plate for a moment, describing small circles, afterwards allowing the film to absorb more moisture before renewing the operation.

On the first application of the powder only the deep shadows and the half shades appear. It should be so. Should the impression take hold of the powder rapidly in the half lights and delicate details, it would indicate under-exposure, and the image would become spoiled. In such a case it is better not to proceed, but to wash out the preparation in order to perform the operation over again. On the other hand, if the details hang back, or if after, say, ten minutes, the development does not progress any more, or, also, if the contrasts of the picture are exaggerated, the plate has then been over-exposed, and no good result can be expected, even by breathing upon the film to impart moisture, and thus to force the development. However, local breathing by means of a tube is sometimes advantageous to bring out the details in the lights without intensifying the shadows when the exposure time has been a little too much prolonged. On the whole, it is better not to resort to any dodge for improving the impression. The result is never an exact countertype of the cliché which it is so important to secure in the three-color process. There is, of course, a certain latitude, but not as great as for plain monochromes. When all the details are well developed, the plate is heated to remove the moisture it has absorbed, and the superfluous powder dusted off carefully, in order not to remove it from the delicate half-tints, where it does not adhere as well as in the other parts of the image. Now, it remains to eliminate the bichromate not acted on by light; that is, to fix the image, as it is termed. For this purpose, one prepares the following bath:

Fused borax, powdered	125 grains.
Alcohol	12 ounces.
Water	4 "

The borax is first dissolved in the water by the aid of heat, the alcohol added, and the solution filtered when cold.

The plate is immersed in a certain quantity of this solution until the yellow color of the film has disappeared, then removed into another (new) quantity of the same, in order to secure a complete elimination of the bichromate. The plate is allowed to dry afterwards.

As to the vitrifiable colors, they should be translucid. They are found in commerce, but very often not powdered sufficiently fine for our purpose. We specially recommend the color of Lacroix. In selecting the color—yellow, red, carmine, blue—one should observe that they should be appropriate to the material upon which they will be burnt in. Those prepared for porcelain and faïence painting are too tender for enamel plates on account of their great fusibility, while the same would be too hard—not sufficiently fusible—to be employed on glass. Hence, one should be careful to select them according to the material to be decorated.

As we have said before, the burnt-in chromo-photographics is done either on plate and window glasses, porcelains, tiles, etc. On glass plates, and on any other material with a nearly plane surface, the work is easy, but on curved surfaces it offers some difficulties on account of the registering of the transfer proofs, which should be on pellicles often somewhat extending or contracting, and therefore not preserving their original form, which, therefore, prevent the three images from coinciding exactly.

On plane surfaces the process is direct; that is, the three monochromes are successively made and burnt in on the material itself, without having recourse to transfers. Thus, one commences to print, develop, etc., the yellow proof, and, after firing, the material is again coated, when cold, with the bichromated compound, then exposed under the red printing diapositive, developed with the red vitrifiable color, fired, and the synthesis completed by superposing the blue print in operating in the same way. As by firing no change occurs in the dimensions of the pictures, the registering offers no difficulty whatever, provided the registering opaque dots coincide in the three diapositives. Of course, each color can be done by series, preparing, for instance, all the yellow proofs to fire them together, then proceeding with the red, firing, and lastly, printing the blue proofs. The reader understands that since all the colors are transparent, the order of superposition, yellow, red, blue, can be done in any other way, specially for transparencies.

The third proofs being burnt in, the result is an encaustic fac-simile of the model, with its colors very approximatively reproduced. However, sometimes it is well to complete it by a fourth monochrome in bistre, or a neutral tint made by mixing the three colors, red, yellow, blue, in certain proportion, or any other appropriate tint, from a special cliché, or applied by hand, when making the retouches which may be necessary, in order to give relief to the whole picture, and, by forming a general shading, to stump the crudeness of the colors.

The work on curved surfaces is done as follows:

The yellow proof is first made on a glass plate quite clean, and, after development, coated, in avoiding striæ, with plain collodion at 1½ per cent. When the film has set, its edges are cut all round with the point of a steel scraper, not by dragging, which would cause the film to wrinkle, but by vertical strokes. This done, the plate is immersed for a few minutes in water slightly acidified with nitric or sulphuric acid (2 to 3 per cent.), where the chromic compound is eliminated and the collodion film becomes loosened. After rapidly rinsing, the plate is placed in a vessel filled with a 5 per cent. solution of dextrine, in which the film, with the image adhering to it, soon detaches itself, or may be easily detached by lifting it with the point of a brush. It now remains to transfer it on the material, collodion side in contact with it.

When the object to be decorated is large and hollow—a plate, for example—it serves to hold the dextrine solution, and, as soon as the pellicle is detached, the liquid is slowly drained off, and the pellicle placed on the plate in the proper position. When dry it is fired, and one proceeds in the same way for superposing the two other monochromes.

If the object is small, concave or convex, it is introduced in the dextrine solution, poured in a large vessel, as described above, and placed under the pellicle, and, holding the latter in contact with the object, both are lifted out from the liquid in an inclined position, when one proceeds as above explained.

But should the object be large and convex, then one operates as follows:

A sheet of transparent paper is introduced in the dextrine solution, under the pellicle, and both in contact with each other, removed from the solution. The paper is now cut so as to be of the same size and shape as the proof, and the latter immediately transferred on the material while wet—the manner of doing it is obvious—then sponged by covering it with a sheet of tissue paper and blowing over the whole. This is repeated two or three times. Now, again covering the proofs with tissue paper, one gently dabs over it, as it dries before a stove, with a plug of wadding, in order that it may fit the curvature of the object.

As is seen, the transferring to very convex surfaces, often not developable, is not by any means as simple and facile as on other surfaces. For monochromes to be colored or not, the difficulty is easily mastered by an experienced hand; but to exactly register proofs one over another, as it should be done in the chromo-ceramic process just described, is quite different. On the whole, this manner is not industrial, and the manufacturers should, in the case now in question, have recourse to printed transfers from photo-engraved plates similar to those employed for the three-color illustrations of magazines.

PROCESS NOTES.

Silver Bath.

TAKE any quantity of nitrate of silver, place it in an evaporating dish, and heat not merely until liquefied or fused, but heat to a red heat for at least two hours. This, if properly done, will burn out all impurities. Allow it to cool, and then dissolve the silver in pure water, prepared by adding 2 or 3 grains nitrate silver to the ounce of water, and sunning until clear. Reduce to 60 grains to the ounce, and then add of a 30-grain solution of iodide of calcium all it will take up, or until it remains permanently milky. Reduce to 45 or 40 grains with the prepared water, shake and sun until clear. Filter and add nitric acid C. P. until it tests decidedly acid. Let stand twenty-four hours, and you will have a bath that will work quick and clear as long as there is anything left of it, provided it is properly taken care of and kept at a temperature of not less than 60 degrees.

Care of the Silver Bath.

Have at least enough solution for three baths, and a surplus to add to them as needed. Let bath stand open at all times, unless when dust is floating. Wipe up any dust there may be on your shelves with a damp cloth. Never allow the temperature of your dark-room to go below 50 degrees.

Should the bath become too strongly acid, add, a little at a time, a weak solution of soda carbonate, and stir so long as it will take up without leaving a precipitate. Place in the sun until clear.

H. D. Farquhar.

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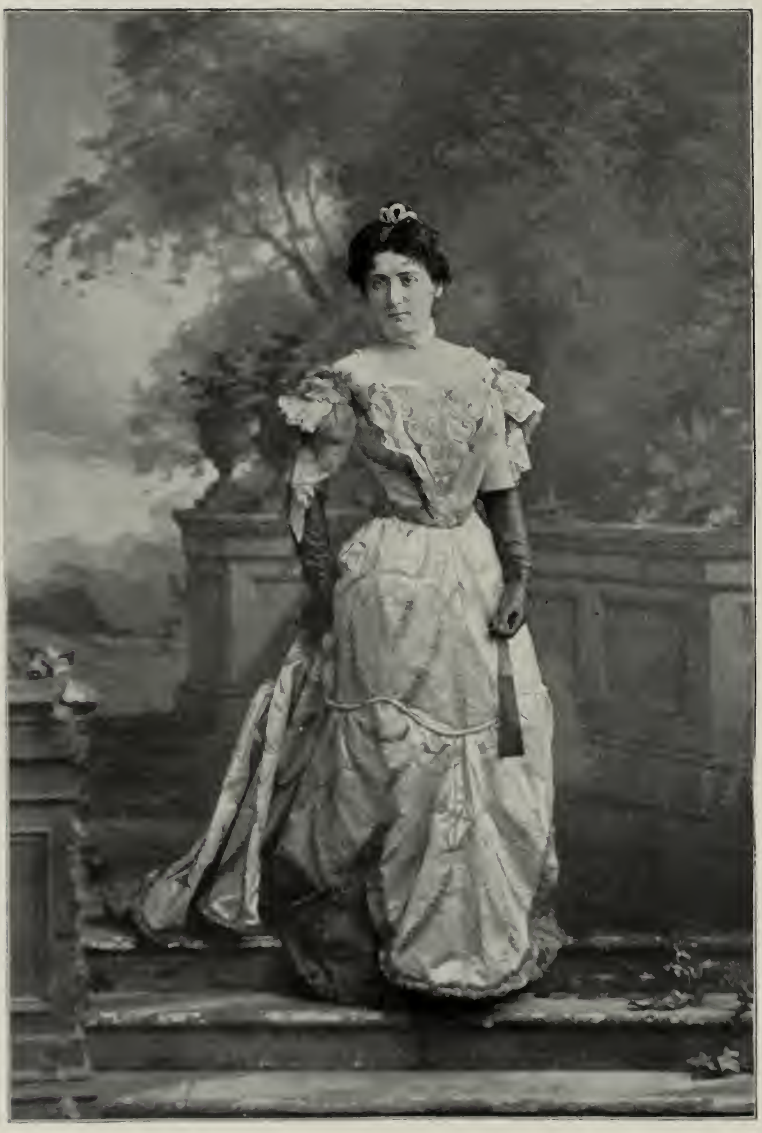

STUDY BY DANA,

NEW YORK AND BROOKLYN.

ANTHONY'S

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EDITORS:

Prof. CHARLES F. CHANDLER, Ph.D., LL.D.

W. I. SCANDLIN.

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RETROSPECT AND FORECAST.

IN looking over the work of the past year, we think we can discern evidences of growth and improvement, and believe that there have been cases where the BULLETIN has been of direct help and advantage to some, at least, among its readers. Such has been our effort, but, with such an aim, it is inevitable that a retrospect of the situation will also show cases of failure in reaching the ideal. Where the BULLETIN has been of the most use, we believe it has been through the direct help of its readers themselves, and we beg to express our appreciation of the assistance that has been rendered it, and the hearty support which it has received during the past year of its life. In looking forward to the commencement of a new volume it is not our policy to lay down any hard and fast rules which shall govern our work, but we shall endeavor to meet existing conditions and questions of interest and importance as they arise, treating them in as fair, broad and liberal a manner as is possible, and in this way earnestly hope to render further service to our subscribers. The columns of the BULLETIN are always open to its readers, and we shall at all times be glad to receive articles, suggestions, criticisms, inquiries, hints and photographs for illustrative purposes, which we shall use wherever possible, and in this way we trust, bring about a closer relationship between our readers and ourselves.

Only in such a manner as this can the BULLETIN hope to be of the best use to its subscribers, and we shall feel complimented if its readers will send suggestions as to how the BULLETIN can be of greater help to them individually, keep it informed of items of photographic interest in their various sections of the country, come to it for advice on photographic problems, and in this way make it possible for us to be of more practical use and value to them all. They will be the gainers, in exchanging experiences.

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With the hope that we shall in the coming year have the same hearty co-operation which has been accorded in the past, and with our best wishes for a continuance of business prosperity and success which seem to be dawning upon us, the Bulletin wishes its many readers the compliments of the season, and of many seasons to follow.

OBITUARY.

James Landy.

We learn, just as the Bulletin goes to press, of the death of Mr. James Landy, of Cincinnati, and have to record the same with feelings of deep sorrow. Mr. Landy has been suffering for a year past, and on three occasions his condition seemed to warrant extreme alarm, until finally he was taken to a hospital, where the best of care and nursing could be given him. Notwithstanding all that was done for him, he passed away on the night of November 16th. His loss will be felt, not only by his own immediate circle of loved ones, but in the world of art, in which he held high rank as a photographer.

Mr. Landy was born in New York City, August 12, 1838, and began his photographic career at a very early age, opening a gallery in Cincinnati in 1863, since which time he has made that city his home. His work in the realm of artistic photography embraces, among other examples, "The Seven Ages of Man," the original copies of which hang in the Shakespeare Memorial Library, in Stratford, and have called forth high admiration from many lovers of Shakespeare; his ideal representation of Longfellow's "Hiawatha"; his interpretation of the commandment, "Man, Know Thy Destiny," which won Mr. Landy the prize cup through two competitive art conventions, and another, which is, perhaps, as notable as either of the preceding, "Moses and the Tablets." His influence upon photographic art has been of great value, and his loss will be keenly felt.

Samuel T. Blessing.

The death of Mr. Samuel T. Blessing, an old and respected merchant of New Orleans, occurred on the morning of November 18th, in St. Louis, after a long and painful illness. Mr. Blessing had been a prominent dealer in photographic supplies and pictures for many years, and is well known to the photographic fraternity throughout America.

All copy for January number must be in our hands not later than December 15th.

Items of Interest

By the death of Mr. F. W. Edwards, of London, which occurred on October 16th, at the age of forty-nine years, a prominent figure has been removed from the photographic world, and one who has filled an important field in connection with architectural photography will hereafter be missed from his accustomed work. Mr. Edwards was an active photographer of thirty years' standing, and had been for many years President of the South London Photographic Society. He had been also a member of the Royal Photographic Society of Great Britain since 1885. He was, probably, the first professional platinotype printer. His death will be keenly felt among a large circle of associates.

* * *

We are led to believe, by an item in one of our English contemporaries, that, at last, the days predicted and so long sought for by the ancient alchemists, are come to pass, as we find that a new substance is being manufactured which is "so much like gold that the United States Mint buy it and pay for it as gold, but which is alleged to be made from pure silver." We hope soon to learn that the fountain of perennial youth has also been located, as, doubtless, will be the case, for we believe these two subjects have gone through the ages hand in hand down to this time, and cannot feel that the gods will allow them now to be rudely separated.

* * *

The several articles on the subject of Solarization and Halation, to be found in this number of the Bulletin, treat the matter from different standpoints, and will, we believe, prove a valuable collection, full of points of interest and value.

* * *

The hand camera is coming largely into use in connection with military operations, and, perhaps, nowhere so much so as in the German army. Lieutenant Keising, in a lecture at Berlin, upon the value of photography in field operations, lately expressed his belief that every officer's patrol should be provided with a small hand camera, to be carried suspended from the belt or saddle, and the exposed plates to be developed immediately upon the return of the patrol to the main body. We believe that the time is not far distant when the camera will be an important and necessary part of every company equipment, at least.

Exhibitors at the foreign exhibitions, in late years, have frequently been invited to contribute, to the society exhibiting, their prize pictures, with an idea of forming a permanent collection of representative works; but a new departure seems to have been taken at one or more of the last exhibitions, by which it is proposed that the society *purchase* from the exhibitors their prize collections for the same purpose, and it seems to us that the innovation is an excellent one from all points. The purchase of such a collection by the committee having the exhibit in charge would tend to stimulate enthusiasm and competition among exhibitors, whose work would thus go on record year by year as the best of its class, and it would, in a measure, compensate the workers for the immense amount of labor and expense involved in the preparation of such exhibits as would naturally be selected for purchase. We believe that some such plan as this might be followed by our own national association to great advantage; and that such a recognition as the purchase of a collection would entail would stand as a prize which all would gladly compete for.

* * *

Referring to a recent note in these columns regarding the number of exposures and the extremely large proportion of resulting negatives obtained by D. L. Elmendorf in his work of late years, the following record speaks for itself and will serve to justify great expectations in connection with his photographic tours and resulting work:

In 1894, during a general trip on the continent of Europe, Mr. Elmendorf made eight hundred and forty exposures, with the loss of sixty-one plates from errors in exposure, and nine plates broken in transit. In 1895, during a trip through Italy, the total number of exposures was eight hundred and forty, of which fourteen plates were broken, and four were failures from other causes. In the summer of 1896, during a trip through the West Indies and Mexico, ten hundred and eighty exposures were made, which resulted in the loss of sixty-one, of which nineteen were from breakage, leaving a balance of ten hundred and nineteen out of ten hundred and eighty, fifty-two of which, however, were over-exposed, but, with subsequent treatment by intensification, yielded capital prints. In the summer of 1897, during a trip through the western parts of the United States, twelve hundred and eighty-four exposures were made, of which thirty-one plates were broken in transit, over a distance of twelve thousand miles by rail, and seven plates were lost from other causes. Of the thirty-one broken in transit, however, nine, on development, yielded fine negatives, and of sufficiently large size for lantern slides, making the record stand at twelve hundred and fifty-five perfect negatives out of twelve hundred and eighty-four exposures.

We believe this record is one that it will be difficult to equal or exceed, and shall be glad to hear from any readers of the Bulletin if their experiences compare favorably with the figures above given.

CREDIT.

THE following item, which appeared in the November *Spasm*, seems to us so thoroughly sound and reasonable that we are glad to give it wider circulation, believing that, if it were more widely lived up to, there would be an improvement in the condition of the trade at once. —[Editors.]

" We received a letter once from a good customer—one who had previously been very prompt in fulfilling every obligation—asking for an extension of time on his account, and giving as his reason that he had over $500 on his books, due for delivered work, and that it was hard to collect.

" Now, this man was at that time the only photographer in his town—(there are now one and a half, and he is the half). He was doing good work at fair prices, and was reasonably prosperous.

" The leading industry in his town shut down for a few months, and naturally his business slacked up.

" Foolishly he allowed himself to be worked for tick, and he now realizes how hard it is to collect for a dead horse.

" If a man have a prospect of future work, it is no more than right that he be carried for his actual needs until such time as he can square up according to a fair understanding with the storekeeper.

" But when it comes to photographs, jewelry, bicycles and such-like luxuries, we can blame only the shortsighted business man for taking a mighty poor risk. No one would claim that photographs are essential to their proper living. They are luxuries in every sense of the word, and the photographer who allows himself to be worked for credit stands closely related to the smart Aleck who goes to N'York, b'gosh! for green goods.

" Run your business on a business basis. Use brains at the desk just as you do in the darkroom, and, when approached for credit, tell your people that they are foolish to buy what they don't need when they are not in a position to pay for their actual necessities. Don't jump on them and growl out your rules for business, but let them know squarely that it is not common sense to run in debt for the goods you handle.

" Go at this matter rightly, and it's ten to one that your customers will feel that you know what's what. They'll respect you more, and once they get the idea that you're doing well, you can depend upon it they will stick to you.

"Everybody likes to buy from a prosperous merchant ; and you'll do more business and make more money, and at the same time you'll avoid trouble, for if ever you want a man's enmity, just get him in your debt.

" Think this over!"

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HALATION.

By E. A. Robins.

IN a recent article in the *Amateur Photographer* on Halation, the writer in summarizing his remarks says :

"The phenomenon of halation is one of the greatest interest to photographers, principally to those connected with architectural work, but also in a lesser degree to all photographic workers. The origin and cause of halation can be briefly summed up as follows (for a more extended discussion and proof the reader must be recommended the usual text-books of photography). When light falls upon a photographic film, part is absorbed by the particles of silver salt composing the film, part is scattered by the particles and so acts upon the adjacent portions, and the remainder passes through to the support, and in this transmitted light lies the greatest trouble. If the support be a glass plate, part of the transmitted light is reflected at the lower surface of the glass, and, re-entering the film from the back, causes a deposit of silver on development ; this is the well known phenomenon of the spreading of the edges of a brilliant portion of an object over the adjacent less brilliant parts. The amount of spreading depends upon the thickness of the glass, being greater the thicker the glass. For this reason the thin rollable films are free from halation. The thicker the emulsion, the less the halation, but this also increases the amount of light scattered by the particles, and for this there is no remedy.

"I shall give some of the principal remedies against halation, and I should advise that all plates which are to be exposed upon important subjects be backed. Although it may seem an unnecessary amount of trouble, it will be found to repay the extra trouble, for if a plate be half coated with any one of the following backings and exposed upon a brilliantly lighted object, it will be found that the backed portion is more brilliant and full of detail and definition. A backing, to be effective, must have nearly the same refractive index as glass, be mounted in optical contact with it, and either absorb the light or else reflect only those rays which are non-actinic. One method was to coat the emulsion upon the plain side of ground-glass ; the ground surface scattered the transmitted light and so prevented reflection. Another way is to coat brown paper with glycerine and squeegee on to the back. Brown carbon tissue soaked in glycerine and water and squeegeed upon the back makes a good and easily removed backing, the glycerine making the tissue remain moist. A mixture of caramel and gelatine applied to the back by means of a sponge or brush is very good ; this is easily removed, and if it does get into the developer it is of no consequence, but rather beneficial, as it renders the developer more non-actinic. Caramel can be obtained commercially or easily made as follows : A quantity of white sugar, not moist sugar, is heated in a large pan ; as the sugar swells up, and is well stirred all the time, it melts and changes to a brown liquid. The temperature must not be raised above 220 degrees Fahr., viz., when the mass begins to thicken, else it may become insoluble. It is then poured out upon a cold slab. When cold, it is broken up and placed in a bottle with about one-third the quantity of water and allowed to stand. In a few days it will have dissolved and be ready for use. Powdered burnt sienna mixed with gum arabic, glycerine and water makes a good backing, drying fairly rapidly and easily removable by a damp sponge. A solution of bitumen or asphalt or brunswick black can be used, but are difficult to remove. A very effective backing can be made by dissolving in plain collodion some aniline dye, such as 'aurantia' of chrysoidine. This is easily applied, and, being transparent, need not be removed until after the negative is dry, when a damp cloth will remove it, the negative being laid face downwards upon clean paper. Of all backings this is the best."

SOLARIZATION.*

MUCH attention has recently been given to the subject of halation and its prevention, and the merits of various plate-backing mediums have been frequently discussed. The fact that a backing which effectually prevents halation also very appreciably retards solarization seems, however, to have received little notice, though it is of sufficient importance to deserve careful consideration.

If we take a negative showing a fairly lengthy series of gradations, and expose under it a partially backed gelatine dry plate for a time sufficient to solarize the highest tones, we find that the developed result varies very considerably in the backed and unbacked portions of the image. The backing not only hinders the fogging of the lower tones, but it also preserves the density of the upper ones to such an extent that it is evident reflected light must play a very important part in the production of solarization. It is also noticeable that solarization does not commence in any tone until after a maximum amount of developable density has been attained—that is, until direct light has penetrated the whole depth of the film, and more or less affected every layer of particles. This condition must also be fulfilled before halation can be produced ; hence it is evident that halation and solarization must, to a certain extent, take place concurrently.

Halation is only generally recognized by the appearance of more or less dense local fog in the lower tones adjacent to the high lights ; but, obviously, the high lights themselves must be simultaneously affected in a similar way, and to an even greater extent. The film in the lights is practically illuminated on both sides, by direct light from above and reflected light from underneath, and if we consider that the intensity of the direct light diminishes as it penetrates the film downwards, while that of the reflected light diminishes as it progresses upwards, it is obvious that, though the lower layers of particles are reached by weaker light than the upper ones, yet they are more uniformly illuminated.

There is another point with regard to the lower layers of particles in the high lights. If exposure is long enough to produce partial solarization, they remain undeveloped, though with a shorter exposure they are readily reducible. This fact is not generally well known, but it can easily be corroborated by giving a series of varying exposures and examining the backs of the results after development, but before fixation.

The question now arises: Can the non-development of the lower layers of particles in the partially solarized film depend upon the fact that they have been submitted to more uniform illumination than the upper ones ? or, to put the question another way, is it possible that a particle uniformly illuminated by comparatively weak light can become undevelopable or solarized more rapidly than one that is subjected to much stronger light, but on one side only, as is practically the case with the upper particles ? If so, it not only follows that the solarization of a single particle depends more upon the uniformity of the illumination than upon the intensity of the light reaching it, but also that, in an unbacked plate, solarization must commence near the glass support and progress upwards to the surface of the film.

These assumptions, though apparently quite contrary to preconceived ideas, nevertheless accord very closely with observed phenomena, and a little consideration will show that their truth is by no means improbable

Speaking generally, there are two theories that have been put forward in explanation of the non-development of solarized particles. The first is that, by the continued action of light, the developable product or subsalt, primarily formed by exposure, is reconverted into non-developable normal salt. The second theory is, that the developer is unable to reach these particles, owing to its penetration being in some way hindered or obstructed. If we bear in mind the important fact that, by the use of a very weak developer, the effects of solarization and reversal may be counteracted (a phenomenon on which much stress has been laid, both by Captain Abney and Professor Meldola), it is evident that the developable light product cannot be completely destroyed by solarization, for this would render the high lights absolutely undevelopable. Hence the first theory, if true, can only apply to a small portion of the light product, and, naturally, only to the outer molecules of the particle. Then, again, the phenomena of reversal are recurrent, positive and negative images being produced alternately ; but this fact cannot be reasonably accounted for by the second theory, if we assume the obstruction to be owing to the induration of the gelatine during exposure. If, however, we assume that the obstruction consists of the normal salt reformed under the first theory, and that this prevents the developer, not from reaching the particles, but from reaching the developable subsalts still contained in those particles, then the phenomena referred to can be readily accounted for.

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* By Mr. C. Welborne Piper, in *The British Journal of Photography*, October 22, 1897.

The recurrent nature of reversal can be attributed to the alternate production of subsalt and normal salt on the outside of the exposed particles, this effect being the most probable result of the action of light of a constant power upon the silver salts in the presence of a sensitizer of continually diminishing power ; and the correction of the effect of reversal, by the employment of a weak developer, can be understood if the developer is so weak as to be unable to produce any effect upon the particles in the non-image until after it has penetrated the protective coating of normal salt in the particles in the image, and reached the readily reducible subsalts underneath.

The effects of the uniform and unequal illumination of individual particles can now be compared. If a particle is illuminated from one side, some portions will only be reached by an amount of light sufficient to produce a minimum quantity of subsalt, but not powerful enough to rehalogenize it, and the particle cannot be absolutely undevelopable so long as a single molecule of subsalt is accessible to the developer. On the other hand, in the uniformly illuminated particle, if the light is powerful enough to rehalogenize the subsalt at all, it will do so uniformly, and the whole will be equally well protected from the developer. A particle uniformly illuminated by even a comparatively weak light may therefore become completely solarized more quickly than one reached by much stronger light upon one side only; consequently, if the plate is backed, the uniform illumination of the lower particles being more or less effectually prevented, solarization is retarded.

As before pointed out, the acceptance of this theory necessarily involves the admission that solarization must commence at the bottom of the film and progress upwards, at any rate in the case of an unbacked plate. This affords an explanation of the more or less complete disappearance of halation which results from giving a full exposure. If the exposure is full enough for this purpose, there is invariably a slight diminution in the density of the high lights, and both effects can be attributed to the same cause, viz., the occurrence of solarization in the bottom layers of the film.

It is, of course, possible that solarization may progress in both directions in the film, for the greater intensity of the light may, to a certain extent, compensate for the inequality of the illumination in the uppermost layers of particles. The evidence, however, all tends to show that, with an unbacked plate, it first appears in the lower layers, and that a very powerful effect is produced in them before the upper ones are affected. If halation is entirely abolished, solarization still takes place, though very slowly, but it is doubtful if the same ultimate effect can be attained as with the assistance of the reflected light. It is also probable that development is, to a certain extent, hindered by the induration of the gelatine ; but if it be remembered that a considerable degree of solarization frequently results from a very brief exposure, while a very long exposure is necessary to produce any marked effect of induration, it is obviously impossible that the attainment of solarization can depend solely upon this factor. The gelatine becomes appreciably non-absorbent only when a very distinct printed-out image is obtained; and an exposure long enough to produce this effect is, as a rule, a great deal longer than that necessary to produce solarization. It must also be considered that induration of the gelatine, due to oxidation during exposure, may possibly be counteracted in some degree by the deoxidizing power of the developer. A film that is impervious to plain water need not necessarily be so to the developer.

COLLODION BACKING FOR PLATES.*

By Edward Dunmore.

OF late there has been considerable discussion on the subject of backing plates, which, I am glad to see, is gradually becoming an acknowledged advantage for all kinds of work. That it should have been slighted by professionals for so many years is rather difficult to understand. Of course, with those who only take a few negatives occasionally, the trouble of backing plates overcomes the somewhat supposed doubtful advantages of doing it; but, as the plate-makers, year after year, improve the rapidity of their emulsions, I am inclined to think, with increased tendency to halation, so the necessity for backing will become more and more evident. If all plates were issued with a good backing, one that is easily removable and innocuous in the developer, it would, no doubt, help to the production of more perfect negative work. Until this happens it only remains for the user to back his own plates. There are two methods, both of which seem to meet the requirements of the case, and when one is found too difficult of application, the other can be substituted. The neatest method is, I think, the collodion method, although I have seen that several correspondents complain of the trouble and waste of time, with the possible damage to the film in addition, by bits of backing getting on to the surface and sticking there unnoticed until too late, giving rise to oratorical display, emphatic if not parliamentary.

The late Mr. W. Bedford used collodion backing, home made, as a vehicle for coloring matter to prevent halation and blurring, that was free from all the faults that have been so liberally bestowed on it. I can say from considerable experience with it, that it was all that a backing should be, after it was once satisfactorily applied.

Coating the back of the plate without getting any on the face was the crux, and necessitated one or two precautions. The collodion must not be too thin; it should be of a creamy, easily flowing description, compounded with more spirit than ether, and the pyroxyline should be powdery, of the kind usually termed high-temperature cotton; about 5 or 6 grains to the ounce of spirit is sufficient; both the ether and spirit may be the methylated kind. When the cotton is dissolved, add sufficient aurine to make it a good deep orange color. The aurine, if powdered small, is easily soluble.

The plates themselves should possess smooth edges. Now, this is one of the most troublesome things about it; if the edges of the glass are rough, the chances are the backing will take a short cut across the face of the plate, to its utter destruction, and its removal at this stage is quite out of the question. In coating it is best not to go quite to the edges with it, and pour it off at the corner in the usual way, then set up on edge to dry. Backing made in this manner does not stick to the plate, or break up into inconvenient little bits to cause trouble, but directly it is wetted, at any rate in a few minutes, can be most easily rubbed off with the finger. For my own part, I had used to put the negative into the dish and develop without taking any notice of the backing, which communicated its color to the solution, and so made the plate more safe from the action of light during development; a wash under the tap afterwards, with the least friction, cleaned it all off—collodion, color, everything. I can

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*From *British Journal of Photography*. October 29, 1897.

only suggest, if the sample of cotton or collodion should be too adherent, a little wax solution rubbed over the glass, prior to coating, would probably remedy the fault of sticking, but with the backing I have just described nothing of the kind was at all required. It almost removed itself under the tap, and I feel sure any one trying it would like it for its anti-halation qualities and neat appearance, for, save and except the care required in coating, it is unexceptionally good.

The alternative method of backing is with a mixture of burnt sienna, caramel, gum arabic, and diluted methylated spirit. A small quantity of gum is required, just sufficient to keep it from being powdery and causing dust specks on the surface of the plate with shaking about in the dark slide. It can be applied in two ways: if thin, it can be brushed over the glass with a flat hog's-hair tool; or, if thicker, a little poured on to a slab and used with a soft roller squeegee, like a printer inks up his type. This is a very neat way of doing it and answers very well, a much less quantity of backing being required to cover a definite area of surface. Like the collodion it will not injure the developer, although, being opaque and somewhat messy in comparison, I generally rub it off under the tap with a piece of rag before commencing development.

In the application, I rest the plate on the lower edges, holding it firm with the left hand by pressing the fingers on the upper edge whilst the composition is applied with the right hand, in preference to laying the plate flat on its face on a piece of soft paper and then applying the backing; however, it is of slight consequence, taking care not to finger the surface of the plate or lay the backing on too thickly. The less used, the better, so long as the glass is covered. The room in which the plates are left to dry should be quite dark, or there is a chance of an unpleasant surprise by finding streaks and markings on the negative where the light has acted on it through the thin or bare parts that happen to be uncovered with backing—brush marks, in fact. It is always best to put away the plates as soon as dry, which, if there is a fair amount of spirit in the backing, will not be a very protracted period.

NOTE.—It may not be generally known by readers of the BULLETIN that a preparation for backing plates, sold under the name of Anti-Halo, has been on the American market for a considerable time, which is sold ready mixed, only needing to be applied with a brush or sponge to the back of the plate.—[EDITORS.]

A CORRESPONDENT, signing himself "Student," seeks information in regard to the use of very hot or even boiling water in the preparation of solutions from the ordinary chemical agents used by photographers, asking if it tends in any way to impair the nature and potency of the chemicals so dissolved? In answer to this query we would say that, so far as our own experience and information goes, no deleterious effects are observable from the use of hot or even boiling water, and we think it can be safely used in any and all cases, and with advantage where time is an object and the salts are desired to be quickly and thoroughly dissolved.

THE METRIC SYSTEM IN PHOTOGRAPHY.

IN the annual address to the Royal Photographic Society (of England) by its President, Lord Crawford, on October 12th, after speaking of the origin of the metric system, he proceeded to say in part :

" But we have to direct our attention more to the every-day use of the units rather than to their origin—here it is that complexity comes in as compared with the simplicity of the great rival.

" If we take an ordinary formula, as printed in the text books, involving ounces and drams and grains, we are at once face to face with a difficulty, unless the author gives explicit directions as to the tables to be used. There are three ounces and two drams (though spelled differently), avoirdupois and troy and apothecaries' — the ounce is respectively 437½, 480, and 480 grains ; the drams, avoirdupois, 27.34375 grains, and the apothecaries', 60 grains. It is true that in general we use the apothecaries' weight, if we can, owing to the grain capacity of the ounce ; but we buy our materials at one ounce and make our formulas at another, having a ratio between them of about 28 to 31.

" Again, in using the fluid ounce, which has 480 minims, a difficulty always arises in making up our 10 per cent. solutions. If we use a measured avoirdupois ounce of 437.5 grains, we cannot take 10 ounces of fluid, but must measure off carefully 4,375 minims.

" But you will willingly pardon me for not pursuing this theme. The bothers of our weights and measures are like weekly bills, with us always, and none can appreciate them to a greater degree than my audience.

" A weight often in our minds, though seldom in our hands, is the grain, and if it had to be dispensed often, the easiest way to get at it would be to dissolve 10 grains in 10 volumes of solvent, and take one-tenth of that volume ; and I have little doubt but that most of those present, in toning, dissolve a tube of gold chloride in 15 drams of distilled water, and take therefrom a dram or two for the bath, according to the formula being used. I think it will very rarely occur that one single grain of a substance would be required for the bulk of fluid which has to be used at one time. Therefore, there is no vital necessity for a weight so small as a grain. We could do equally well if the weight were much larger. Now we know that there are 15.43 grains in a gram, and it is as easy to manipulate decigram weights as to use grains ; in fact, they are slightly larger, or in the proportion of about 20 to 31. It will not, therefore, be asserted that the metric unit, or subunit, is one which will not permit us to weigh out a sufficiently small quantity from our store.

" Let us go a little further. We seldom find ourselves making up a formula to a single fluid ounce of any developer—we often make up 4 ounces. This is nearly equivalent to the tenth of a liter, or 100 cubic centimeters (113.5864 cubic centimeters). We have now a convenient weight for solids and a handy measure for fluids closely approximating to our daily comparisons. I have noticed a growing habit of expressing formulæ in percentage solutions—‘take so many parts of a per cent. solution’—to be made up to the volume of 100.

“This use of the decimal system is most convenient, without doubt, yet I would urge you to go yet further, and adopt for your working the weights and measures of the metric system. Some may ask me if we use the percentage solutions you have just mentioned, why trouble about getting new weights and glass measures? And my answer is that the grain and the minim are not an equal measure of water or any fluid, and, therefore, from the lowest step in the scale we commence with an error, which naturally grows with larger quantities.

“I think it will not be denied that for accuracy the metric system by far transcends the non-methodical practice used still in England. I should weary you by giving extracts from parliamentary papers giving the evidence of our savants. I will assume that the first part of my postulate, ‘conducing to accuracy,’ is granted.

“My second point was facility of computation and manipulation. When a formula is presented to you by a foreigner in his writings, it is almost invariably given in the metric notation, and is made up with ease by those who are familiar with that system, but to many it is as yet a sealed book. But we more frequently find at home the formulæ thrown together to 4, 8, 10, 16, 20, or more ounces of water. More rarely are we given the proportions to 1 ounce.

“Now, until the metric system has displaced all others, the old method is certain to appear, and we must find a means of translating the one into the other. Allow me to bring before you a way of doing this with comparative ease. It seems so simple that I can hardly think that it is not known, and yet I only found it in the effort to place a concise translation formula before you this evening.

“Take any formula that you like. It consists of the weights to be measured out and dissolved in a certain number of ounces of water:

“1st. Call the new volume of solvent.	1,000 cubic centimeters.
“2d. If any of the ingredients run to ounces, take their ratio to the solvent and write down the same ratio to 1,000 in..........	grams.
“3d. Divide each grain item by half the number of ounces and write down the result as.......	“

“Thus, if your formula contains 20 ounces of water, divide your grains by 10. If 8 ounces water, divide by 4, etc.

“I am bound, however, to say that this rule is only approximate—the strength of the solution being slightly too weak. Still, for all practical work in the developing-room, I think it near enough. Should it be desired to work to extreme accuracy, the divisors of the grain quantities must be reduced in the proportion of 24 to 25, or 4 per cent.

“For those who wish to use the correct divisors, I add the table of them:

Ounces in Solution.	Grain Divisors Approximate.	Grain Divisors Correct.
1	.5	.48
2	1	.96
4	2	1.92
6	3	2.88
8	4	3.84
10	5	4.8
12	6	5.76
14	7	6.72
16	8	7.68
18	9	8.64
20	10	9.6

"Let me take an old formula and translate it for you:

	Approximate.	Correct.
A. Pyro .. 2 drs. (60 grs.), div. by 8	Pyro.. 7.5 grams	7.812
Cit. ac. 15 grains, divide by 8	Acid... 1.875 "	1.953
Water.. 16 ounces; write	Water. 1,000 cubic centimeters	1,000

"Another:

		Approximate.	Correct.
Sodium sulphate.	2 ounces	100 grams	100 grams
Sod. carbonate..	4 "	200 "	200 "
Pot. carbonate .	2 "	100 "	100 "
Hydrochinone...	30 grains	3 "	3.125 "
Pot. bromide....	40 "	4 "	4.166 "
Water	20 ounces	1,000 cubic centimeters	1,000 cubic centimeters

"I think this will suffice to make my meaning clear, and I must pass on to the actual manipulation. It is not every one who has in his possession a set of metric weights and measures, but that need not hinder us greatly. We can with ease make for ourselves a set good enough for all practical work. First, as to weights.

"The French silver and bronze coinage form good weights, provided they are clean and not worn by long use.

"They weigh as follows:

Silver Coins.

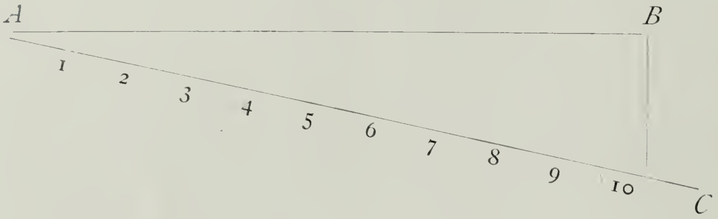
5 francs	25 grams.
2 "	10 "
1 franc	5 "
½ " or 50 centimes	2½ "

Bronze Coins.

10 centimes	10 grams.
5 "	5 "
2 "	2 "
1 centime	1 gram.

"If some of these are procured, say, ten French pennies and a few halfpence, they will prove very useful; indeed, I always have a few in a handy box near the scales. But the smaller bronze coins of France are not always to be found, and it is frequently necessary to use lesser weights than 10 or 5 grams. They can be made at home well enough in this way: Get a piece of copper wire rather thin, so that 10 or 12 inches are balanced in the scales by the 10-centime piece. With a file adjust it true and straighten the wire out. Next, on a sheet of paper, lay out the exact length of the new weight; *i. e.*, the wire thus, *A B*.

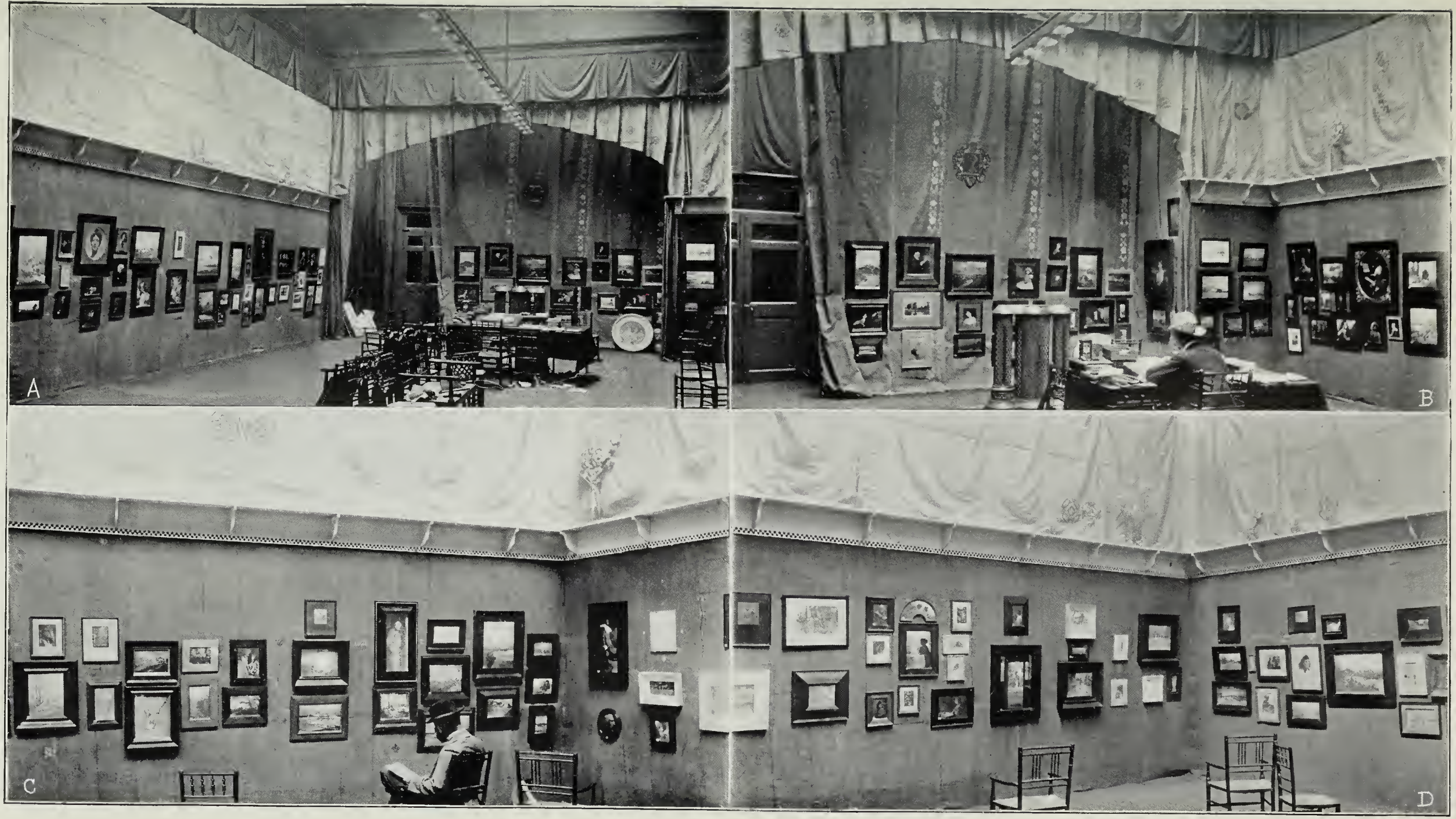
"Next draw the line *A C* at any angle from *A B*, and divide it with a pair of compasses into 10 equal parts. Then join *B* to 10, and parallel to this line draw others from each division to the line *A B*. This will divide *A B* into 10 equal parts. Now take the wire weight, and with a sharp chisel cut it at each division marked on the line *A B* of the paper. If this is carefully done, each of the pieces of wire will weigh 1 gram. A similar operation may be gone through with thinner stuff or aluminium wire to make the tenths of the gram.



"Now, as to the measures of fluid for those who are not provided: Take any vessel convenient, put it in your scales and carefully balance it by means of, say, small shot in a bag or box. This once done, the shot weight can be used in after work as long as agreeable. Then, if, say, 100 cubic centimeters of a fluid are wanted, simply put the 100 grams in the scale with the shot weight and fill the vessel till they balance. It is simplicity itself."

* * *

It will be of interest to readers of the Bulletin to learn that Mr. and Mrs. H. Snowden Ward, editors of the *Photogram*, of London, are contemplating a visit to this country, which will extend over a period of several months, and that they will probably reach New York before the present number of the Bulletin is published. It is their purpose to deliver a series of lectures on a holiday subject, "Shakespeare at Home," of which they have made special and very extended study. They will probably visit many of the larger cities of the United States, and we bespeak for them a cordial welcome from all members of the fraternity, wherever they may be. Their interest in and contributions to photography certainly warrant their being heartily received in any section of this country where photography is practiced, and we predict and hope for them a pleasant and prosperous trip.



PHOTOGRAPHIC SALON (ENGLAND), 1897.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE PHOTOGRAPHIC SALON OF 1897.

By Rev. F. C. Lambert, M. A.

THE collection of photographs shown in the Dudley Gallery, generally known as the Photographic Salon, this year, marks a new departure in an important way. The gallery has been especially decorated for the purpose by our foremost art decorator and designer, Mr. George Walton, of Glasgow. Moreover, the hanging and arranging of the frames has been left in his hands, so that the room is to be regarded as a whole. The matter is briefly referred to in the closing paragraph of the catalogue fore words: "An endeavor has this year been made to show that the color and character of the wall upon which a picture hangs are quite as important in its framing as the mount or moulding which immediately surrounds it, and that a monotonous regularity in the arrangement of an exhibition is in no way a necessity."

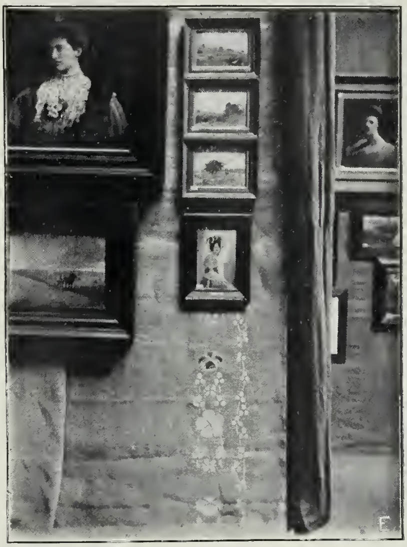


Fig. 1.

As this marks a new era in photographic exhibitions, and has been sharply criticised by a few and warmly approved by the many, it has been thought that a brief detailed description of the decorations, etc., would be of interest to our brethren in America. Moreover, the exhibition now being held in our new gallery is another example of Mr. Walton's taste and skill in decorating and arranging a gallery. It is a common report that this very remarkable show will be taken to America in due course. Consequently, what is said about one set of decorations must necessarily have some relation to the others.

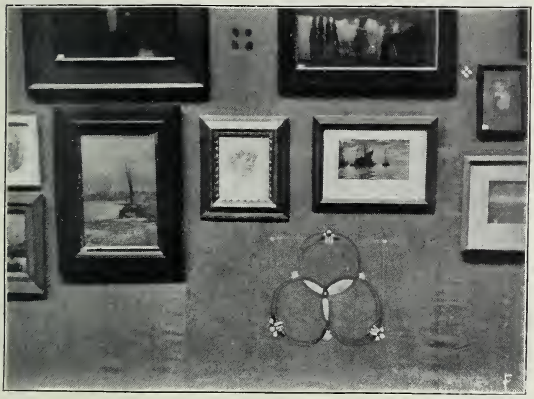


Fig. 2.

First, let it be said that the accompanying illustrations are from negatives by the present writer, made especially for the purpose of this article, and that they are to be regarded as diagrams rather than pictorial efforts.

It should be understood that the room is quite small, about 24 feet wide and varying in length from 50 to 62 feet. In the roof there is a central, double-slope light. Below this hangs a row of electric lights.

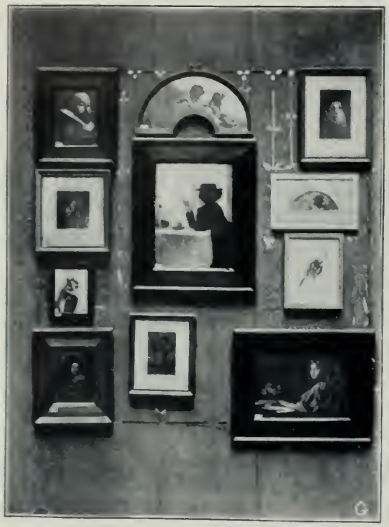


Fig. 3.

Turning now to the new hangings. Along the lower part of the walls, on which are hung the pictures, we have a brown, rough canvas, of a tint somewhat warmer and redder than coffee brown. The color is, perhaps, just a trifle too red. Then about 8 or 10 feet from the ground we have a narrow shelf, about a foot wide. As seen in Fig A, this is supported on brackets. The whole thing is roughly made of wood and painted creamy white, with a narrow band of the classic check pattern, *i. e.*, two rows of small black and white squares alternating. Next, we come to a band of gray canvas, at intervals relieved by some quaint stencil designs. Above this, again, is a loose drapery in dull (rather dark) green.

Towards the door is a recess (see Fig. A). This is arched by loose folds of the canvas drapery, and its walls hung with a fine gauze-like pale gray canvas. Along one side of each strip is a graceful design in stencil. Three of these vertical lines of stencil are seen in Fig. A, and a bit in detail is shown in Fig. 1. The lightness and transparency of this material is shown. By the way, one can see a portion of the door through a fold of it in Fig. A.

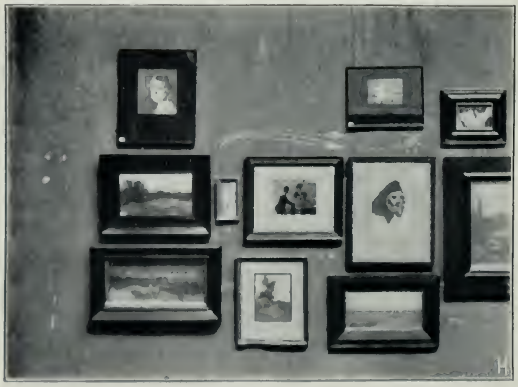


Fig. 4.

In Fig. B we have another corner of the recess near the door, and seated at the table is our energetic secretary and organizer, Alfred Maskell.

In A, B, C and D may be seen the shelf. Upon this at carefully thought-out points we have a few bottle-green glass vessels, containing some sprays of "Honesty" pods, or, as our own tame funny man puts it, "While honesty may be said to be put on the shelf, yet it is over all the pictures, look which way one may."

Turning now to the pictures, we see that, what at first glance to the thoughtless, ignorant or prejudiced person may seem disorder, is really a cunningly contrived and pleasantly arranged bond of interest running all round the room. The time has surely come when we may safely abandon the primitive method of arranging pictures on a wall in patterns or designs. In all four figures, A, B, C, D, we see that much skill has been employed in securing a general balance of form and interest. At the same time there is nothing like an irritating geometrical design. Horizontal and vertical lines of pictures are used very sparingly. More or less free space is given to every frame, and the interspaces are also sufficiently variable to prevent anything like geometrical design. These interspaces, again, are of much interest, for the artist-decorator has here and there just indicated in very quiet colors a sketch of a decorative design. These may be seen here and there in Figs. A, B, C, D. For example, in A, near the door, and low down, nearly at the tail end of the pictures, according to the catalogue, we have the cypher of the linked ring, *i. e.*, three rings in link. This is shown more in detail in Fig. 2.

In Fig. C, just to the left of the seated figure, we have a little subgroup of three frames, one above the other. At either side of this group we have sketched a vertical design. The two are quite different, and yet quite in harmony, and balance with each other. In Fig. D, we have shown a subgroup, all by one worker, and connected by a skillfully wrought indication of design. This group is well worth careful study. It is reproduced in detail in Fig. 3. Again, to the right of Fig. D, we find another graceful sketch in horizontal curves. This serves to form a sort of connecting link between the pictures over which it extends. This, again, is presented in detail in Fig. 4. There are quite a large number of these little touches of line and color scattered about among the pictures, all serving to make the room, not simply a collection of many photographs, but a room decorated with photography. It will be seen that the decorative sketches abound in originality and simplicity.

◆

We have to record the death in Worcester, on the 7th of November, of Mr. C. R. B. Claflin, who for many years had been a prominent photographer in that city. His illness had been a long one, and he died at the advanced age of eighty years. His photographic experience commenced in 1851, and he continued actively until 1892, when he retired. He was a prominent mason and a member of several sportsmen's clubs, and his collection of negatives embraces a very large number of the best known and most prominent citizens of Worcester County and surrounding neighborhood.

◆

The new Spiral Camera for photographing and projecting, mention of which will be found in the advertising pages of this number, is a capital arrangement for the use of amateurs and others in obtaining permanent records of familiar scenes, showing them upon the walls or screens in their own homes by the aid of the acetylene gaslight, with which the combination is provided.

A NEW INTENSE LIGHT FOR PHOTOGRAPHY AND PROJECTING.[*]

THE Hydro Press Gaslight, after the system of Engineer George Rothgiesser, in Düsseldorf, is an intense white light, which, with ordinary gas and two Auer incandescent burners without chimney, placed on top of each other, develops a light power with one flame equal to 600 candle-power.

The power of this light is conditioned by a pressure of the gas, which is effected by a so-called transformation apparatus, in connection with a water conduit. This apparatus is, according to the number of flames required, about 170 centimeters[†] high and 39 to 40 centimeters in diameter, is of a very simple construction, has no movable tubing or parts of that nature, and requires, aside from the water conduit, no other attention. Water is only used when one or more flames are lit. After use, it runs off without being contaminated, and may be used afterwards for washing negatives or prints. A lamp of 600 candle-light power consumes per hour about 400 liters[‡] of gas and about 100 to 300 liters of water (the latter according to pressure height of the water conduit; with higher atmospheric pressure, less water is consumed), so that the expense of a lamp of 600 candle-power will come from 8 to 10 pfennige[§] per hour.

The pipes for conducting the gas may be light. For 1 lamp, the thickness of a pencil would be sufficient; for 6 lamps, a ½-inch tube.

The transformation apparatus consists of the mixing chambers, which are provided with a number of sieves and perforated dividers, so that a mixture of the air and the gas, pressed by water pressure, takes place, rendering a back-striking of the flame impossible. Ordinary incandescent burners do not give the high light effect with the Press gas, and, moreover, would make a strong noise.

The transformation apparatus is furnished by the Hydro Press Gas Company, in Nürnberg, at the price of 130 marks[||] for two lamps, to 520 marks for twenty lamps, taking 2½ atmospheres as a standard of least pressure of the water conduit.

There is no doubt that this new light offers decided advantages to the photographer, for the studio, as well as for reproductions, enlargements, projections, etc., particularly in regard to the uniform distribution of the light rays, enabling thereby a greater concentration, aside from the low price.

Translated by
HENRY DIETRICH.

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[*] From *Die Photographie.*

[†] One centimeter = .394 inch.

[‡] One liter = 1.06 quarts.

[§] One pfennig = ¼ cent.

[||] One mark = 24 cents.

MICRO PHOTOGRAPHS.

From "Apollo."

ALTHOUGH not so much in demand as in former years, these extremely small photographs, so often found in ivory watch charms, pen-holders, etc., are inquired about quite frequently by professionals and amateurs. How are they made?

The instruments used are an objective of very short focus, and a small camera with a movable holder. This camera and the original negative to be reduced are fastened to the opposite ends of a long, heavy board, similar to the arrangement in use for the making of lantern slides. The camera must be movable in the direction of the objective axis, and the negative must be fastened to a vertically stationary stand. It is then uniformly lighted from the reversed side by either daylight or artificial light. Some difficulty is experienced in getting a sharp focus of the picture. The ordinary ground-glass cannot be used, not being fine enough, and the best medium for this purpose is a perfectly plain piece of glass, coated with pretty strongly iodized collodion, and sensitized in the silver bath, the same way as in the wet process. The focusing is done with a small lens or even with a microscope. The plate intended for the picture has, of course, to lay in exactly the same plane as the plate used for focusing. To be certain on this point, it is best to focus upon the picture plate, inserting for this purpose a yellow glass between objective and plate. If satisfactory sharpness has been obtained, the apparatus is once for all in order for these distances. Bromide of silver gelatine plates, on account of their comparatively coarse grain, are not suitable for these small pictures, and the collodion process has to come to the rescue.

Dagron in Paris, a prominent specialist in this branch, gives the following directions: A glass plate is well rubbed on both sides with a mixture of 1 liter of water, 50 grams powdered chalk, and 200 cubic centimeters of alcohol, applied with a cotton tuft, after which it is gone over with a dry cotton tuft, and thereafter cleaned with a fine chamois leather. The side used for taking the picture is then finally cleaned with old collodion. The collodion must be a little thinner than ordinarily used for wet plates. Dissolve—

Ether	400 cubic centimeters.
Alcohol	100 "
Collodion cotton	3 grams.
Iodide ammonia	4 "
Bromide ammonia	1 gram.

The plate coated herewith is silvered in a silver bath of 7 to 8 per cent. From twelve to fifteen seconds are sufficient for this.

The plate is then washed in a tray or under a faucet with distilled water, to liberate it from the free nitrate of silver, and is afterward placed upon blotting paper, to drip off. The still moist plate is then coated with the albumen mixture given on next page:

Albumen	150 cubic centimeters.

Add

Water	15 cubic centimeters.
Iodide potassium	3 grams.
Ammonia	5 "
White sugar	2 "
Iodine	A small cake.

With a wooden quirl this is beaten to snow (foam) for about ten minutes, after which it must stand for fourteen hours, to settle. The albumen is poured on to the plate the same as collodion, and the surplus filtered back. After drying, the plate is laid for fifteen seconds in a silver bath, consisting of 100 cubic centimeters of water, 10 grams nitrate of silver, and 10 cubic centimeters of acetic acid. The plate is then carefully washed and left to dry. If carefully kept, it will retain its properties for years. To the second silver bath, when it assumes a dirty coloration, is added 25 grams kaolin to each 100 cubic centimeters, by shaking the same well, and the bath is then filtered, after which a little nitrate of silver and acetic acid is added.

After each exposure the plate-holder is moved a certain length, so that ten or more reproductions are obtained upon one and the same plate. The time of exposure depends upon the density of the negative, and differs according to light. It varies between a second and a minute.

The developer is composed as follows:

Water	100 cubic centimeters.
Gallic acid	0.3 gram.
Pyro	0.1 "
Alcohol	2.5 cubic centimeters.

The exposed plate is immersed in this bath, and, after ten to twenty seconds, from 1 to 2 drops of a 2 per cent. nitrate of silver solution are added to each 100 cubic centimeters of the solution, whereby the picture becomes visible. To follow the process exactly, the plate has to be laid—in yellow light—under a weakly enlarging microscope, and only a few drops of the developer are put upon the same. As soon as the picture has reached the desired strength, it is rinsed and fixed in a fixing soda solution, 1:5. Ten to fifteen seconds are sufficient, generally. Finally it is washed well.

After the drying of the plate, the several small pictures are cut with a diamond and fastened to the small enlarging lenses. For this purpose, the latter are laid upon a metal plate heated from underneath, a drop of Canada balsam is put to one end of the same, and, after it has become soft, the small diapositive is taken up with a pair of fine pincers, and is gradually put in contact with the fastener. Both glasses are then allowed to lie until the fastener has become hard. If bubbles appear, the whole method of fastening the picture has to be repeated.

Translated by

HENRY DIETRICH.

THE USE OF PHOTO ENGRAVED PLATES, WOOD-CUTS, TYPES, ETC., IN CERAMICS AND GLASS PAINTING.

By P. C. Duchochois.

I HAVE frequently been asked to communicate a process by which to reproduce in vitrifiable colors on glass plates, faïence, porcelain, etc., the images from the engraved plates, wood-cuts, types and ornaments employed for the illustration of books, etc., in their original size without the aid of photography.

One knows that these engraved plates, wood-cuts and types, are negative, that is, made with the image reversed, and therefore, that the prints pulled from them give the image in its right way. Consequently, to apply them on the materials now in question, one should operate by double transfer. This was not wanted on account of the trouble involved. It was desired to operate by simple transfer.

The process I have recently worked out for this purpose, which I shall presently describe, is so simple and practical that I wonder one did not think of it before. It is as follows :

A sheet of unsized printing paper, say, 11 x 14 inches, is immersed into a mucilage prepared by allowing some quince seeds to macerate in cold water, agitating from time to time, until a syrupy liquid is obtained, when one adds a little of a solution of gum arabic, and, for keeping, a few drops of carbolic acid. About 10 grains of quince seeds to the ounce of water suffice to obtain in half an hour a mucilage of the proper consistency. It may be prepared according to the following formula :

Gum arabic, powdered	100 grains.
Water	8 ounces.

When dissolved add :

Quince seeds	75 grains.
Glycerine	15 drops.
Carbolic acid	2 "

On its removal from the mucilage the paper is pinned up to dry. It may then be kept in a dry place for future use, or at once coated with a film of collodion :

Ether, concentrated	3 ounces.
Alcohol, 95°	4 "
Pyroxyline	50 to 60 grains.
Castor oil	20 to 25 drops.

To coat the paper, it should be spread on a thin flat board provided with a handle at one corner ; and after folding up the edges of the paper, the lower end excepted, to about one-quarter of an inch to prevent the collodion from running off or getting on the back of the paper, a certain quantity of collodion, sufficient to cover the whole surface, is poured steadily upon the middle of the paper at a short distance from the top, and, by slowly inclining the board backwards, allowed to cover first the upper right part of the paper, then the left, then, by raising the board, the left lower part, and lastly the right, when the excess is drained into a vial by the right corner. At the moment the board is upright in a diagonal position, striæ will be seen to form on the coating. They disappear, however, by gently rocking the board from left to right without changing its position. All this should be done without haste, but not too slowly. When the collodion has set, the paper is hung up to dry, and may then be kept indefinitely, so to say.

The collodionized paper curls up more or less in drying, which is objectionable when printing on large sheets. To prevent curling it may be prepared in the following manner :

The paper is first cut the same size as a glass plate, which will serve as a support, and the latter edged, say, to a quarter of an inch, with a solution of alumned gelatine, which is allowed to dry. The plate and the paper are then immersed in tepid water for a moment and both, the paper in contact with the gelatinized side of the plate are removed, contact being insured by rubbing with some force with an india-rubber squeegee, taking care to remove air bubbles, if any, and the water from the surface of the paper, after which the mucilage is twice flowed, drained and the whole set aside to dry spontaneously. The paper is now perfectly flat and pasted by its edges on the plate. It remains to collodionize it and to strip it off from the glass, when dry, by cutting the edges with a penknife. One should keep it flat in a portfolio for future use.

The image is printed on the collodion size. This can be done in two manners from plates engraved in intaglio (copper plates), first, one may ink with a compound consisting of a vitrifiable color, or a metallic powder, mixed to the proper consistency with burnt nut or linseed oil; or second, with mordant, that is, simply with burnt nut-oil, mixed with a little turpentine, and upon this latter print one dusts immediately the vitrifiable color or the metallic powder.

Printing in mordant from wood-cuts, photo blocks and types is imperative.

The transfer may be effected at any time. For this purpose the print is immersed in cold water, where the pellicle soon detaches itself. This done, it is transferred, collodion film in contact with the material selected, by means of an adhesive substance. A plain mucilage of quince seeds will do :

Quince seeds	20 grains.
Carbolic acid	2 drops.
Water	8 ounces,

Allow this to macerate for fifteen minutes, then filter through absorbent cotton or flannel.

The firing is done in the usual manner. First, however, it is well, when not objectionable, to dust over the material a mixture of equal parts of silicate of potash and fused borax. This is an extra precaution, protecting the collodion film, to prevent it in burning, from plating or otherwise spoiling the picture.

The *modus operandi* for transferring on glass the images to be viewed by transparency through the back of the plate may be simplified. The image is printed in mordant on damped unsized paper, or on a thin sheet of gelatine, then immediately applied on the plate with little pressure, whereby the plate is printed in mordant, upon which the vitrifiable color, or the metallic powder, is dusted.

For ornaments not to be burned in on glass (signs, boxes, tops of tables, etc.) bronze powders or colors (not vitrifiable, of course), such as burnt umber, vermilion, etc., are dusted on the mordant, and the glass afterwards backed with an appropriate paint. Designs in several colors can thus be transferred by double printing.

As it has been implied in the beginning of this communication, the processes above described have only an indirect relation to the applications of photography to ceramics and glass painting, their object being to render available the use of photo engraved plates, wood-cuts, etc., not specially intended for that purpose, by laying on glass, porcelain or faïence the vitrifiable color by means of printed transfers, as it is usually done in manufactures. I think they form a necessary addendum to the photo-ceramics and the other industrial photo processes I have already published. Moreover, the knowledge of simple, practical processes which pertain to the decorative arts will certainly be welcomed by the amateur and the professional at all times.

HOW TO MAKE OPALINES.*

THE amateur photographer often wishes—or, at any rate, is expected—to make presents all round to friends with whom he may have spent a holiday. There is unfortunately a desire inborn in the human breast of every person who figures in a photograph to possess a copy of that photograph, even though you assure them that, as they were about a quarter of a mile away from the camera, it is not altogether improbable that the likeness will be far from speaking. Now, to deal out framed prints is a good deal of trouble and expense, and I want to suggest that, to the general run of unphotographic people, the opaline is a far more acceptable present. There is a popular superstition to the effect that if a picture is on glass, it must be something superior to the ordinary print, while, of course, the opaline is so handy for ornamenting the wall, the mantelpiece and the bracket, that it is much more welcome than a mounted print, which only lies about or gets lost. By following the few hints which are herewith subjoined, the amateur will be able to turn out something superior to the usual run of opalines. First, as to the glass to be used. Old negatives are often advised, but, unless the opaline is framed in some way, the rough edges are so unsightly that it is hardly worth while using one's spoiled plates in this way, particularly when beveled opaline glasses, complete with back and strut, can be obtained so cheaply. We may fairly assume that the prints will be made on gelatino-chloride paper, and not on albumenized paper, so that the following remarks apply to the former only. The great difficulty that most amateurs experience is in getting the prints to stick to the glasses. It is a somewhat curious fact—but to any one who has contemplated the natural cussedness of all created things, a highly significant one—that when one wishes to glaze prints by stripping from glass they adhere (in places) with the tenacity of an octopus, but when it is opalines that one sets out to make, the prints drop off the glass with a magnificently glazed surface.

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* From *The Amateur Photographer*, October 8, 1897.

An amateur friend of ours, who holds advanced views on the possession of reasoning faculties by inanimate objects, says that when he commences making opalines he always makes it a point of remarking in a high-pitched voice, " I hope these prints will strip all right." He finds this a perfect charm for making them stick. We may mention, however, one or two additional precautions. In the first place, do not use any alum or other hardening bath during the toning and fixing processes unless the weather should be so hot as to cause excessive softening of the gelatine. If possible, do not allow the prints to dry before squeegeeing them to the glass plates.

Gelatine that has once dried does not readily soften when placed again in water. If these two conditions are complied with, it is hardly necessary with most papers to use any mountant to secure the print to the glass, although its use will ' make assurance doubly sure. Another point or two later.

Now as to cleaning the glasses. For appearance sake, of course, they must be quite clean. At the same time, any greasy matter prevents the prints sticking. First clean them with whiting and water, rubbing the mixture well over ; allow to dry ; wipe off with a clean cloth, and finally polish with French chalk, afterwards dusting all traces of the latter away.

If the glasses have gilt edges, be careful not to rub off the gilt in this process. It ought not to come off, but it is a safe plan to varnish the gilded parts with " white, hard " varnish, obtainable at any paint warehouse. The solution of gelatine for mounting is now made. Soak a quarter of an ounce of gelatine in 5 ounces of water till swollen ; place the vessel holding it in a basin of hot water so as to make the mixture quite fluid ; strain the hot solution through coarse muslin into a dish, and keep gently warm by standing this in a larger dish of warm water. Soak each print for a minute or so in this solution, and lay down on the opaline glass. Air bubbles must now be removed from between the print and the glass. The squeegee will do this, but, before using it, draw the print nearly off the glass and then draw it back again over the edge of the glass. This will scrape away nearly all air bubbles, and if carefully done will not tear the film. Now adjust to the correct position, and squeegee well down with a flat squeegee. The print must now dry in a warm place and under pressure. A number of mounted prints may be piled up and a weight placed on them, or the glass plate may be inserted in an ordinary printing frame, padded up with blotting-paper, and the back of the printing frame put in and sprung down. Warmth, when drying, and good pressure, are points to be noticed in getting the prints to stick well.

Now for a few hints as to how to make an attractive-looking opaline.

It is generally advisable to have the mounting glass slightly larger than the view. A margin of three-eighths of an inch and upwards, according to the size of the glass, can be left all round. This margin can be filled in in various ways. The paper can be masked in printing, and a white or dark border (the latter obtained by masking the printed landscape and exposing the previously protected border to light) obtained. Or the trimmed print may be adjusted centrally on the glass and the bare marginal glass filled in by mounting a piece of suitably colored paper to the back of the glass. Use unobtrusive colors, such as gray, cream, chocolate or olive green for this purpose. Instead of the backing paper, the edges of the print are given a coat of size, and when this is dry the margin is coated with Aspinwall's enamel. The size is necessary to prevent the enamel penetrating into the print. Gold paint can replace the enamel, and looks well. More elaborate methods of decoration will suggest themselves to those possessing the necessary skill. A neat border is made by painting a " Greek key " pattern round the print in black, and backing this up with gold. In fact, a degree of ornamentation can be tolerated in productions of this class (where the subject is usually topographical) which would be quite out of place in photographs aiming at pictorial qualities.

APPLICATION OF PHOTOGRAPHY TO INDUSTRIAL PURPOSES.

By C. Kampmann.

AT the Imperial Graphic Institute in Vienna, the latest printing and transfer processes for glass decorations (watch dials, signs, frames), and also for the production of metal etchings (in copper, brass, etc.) for decorating the same with ornaments, were recently applied to great advantage and with good results.

To decorate sheet glass with ornaments, script, etc., in the cold way, *i. e.*, without application of burnt-in colors, hand painting and the lithographic transfer process were mostly applied. The latter was especially intended to replace the more costly work by hand, but it could not compete in quality, as by the transfer process it is impossible to obtain such artistic results as by hand-painting. The cause of this is almost solely owing to the fact that upon the too smooth glass surfaces a sharp print is almost unobtainable.

To avoid this, it was tried to make the ink more applicable by addition of a hard resin (copal, damar, mastic). Thin rubber skins, as used in the tin printing process, were also applied in place of the transfer paper, but without success. This process is more suitable for prints of engraved or etched metal-intaglio printing plates than for the lithographic stone, and the transfer upon glass is particularly subject to difficulties, because this material cannot stand the necessary high pressure, and will break too easily.

We also tried the direct photographic printing process with chrome albumen and chrome glue, and came in this way to completely successful results, by which the direct printing upon glass, and the subsequent transfer of prints by stripping, could be dispensed with.

The advantage of applying the direct printing process is not only in the better and handsomer result obtainable, but there are other points in its favor which have to be considered.

The application of lithography depends not only upon a thorough technical knowledge of this art, but in some countries its execution is even subject to a license, without which it cannot be worked.

To decorate a glass plate by the above-mentioned photographic process, the same is simply coated with a light-sensitive film of chrome albumen or chrome glue, dried, and exposed under a negative or positive, obtained photographically from the original. The glass plate is then coated in the darkroom with a thin film of lithographic crayon-ink, rolled on to the plate with a fine leather or glue roller.

If the glass plate is then placed in cold water, the picture can easily be developed with the aid of a brush or a tuft of cotton. The whole process resembles completely the one applied for the production of zinc reliefs; and the picture obtained upon the glass is also, as in printing upon zinc, dusted in with powdered resin, fastened to the plate by melting. This process is necessary to give the lines of the picture not only a saturated and strong appearance, but to obtain sufficient solidity, to admit painting with colors, or gilding, etc. To increase this solidity, it is also practicable to dust graphite or bronze powder on top of the resin film, these substances offering resistance to any dissolution of the picture.

In place of the black ink for rolling on to the glass plate, colors of different shades (carmine, chrome yellow, paris blue) in connection with colored powdered resin, may find application, and the result will be red, blue or yellow pictures in place of the black ones. It is only to be remarked in this connection that the colors have to be as compact as possible, but should be rolled on very thin.

The pictures so obtained, and their outlines, show a remarkable sharpness, and the capacity of this direct printing process, if rationally executed, is just as high as, if not higher than, the unreliable printing processes which are attended with many difficulties.

Regarding the second manner of applying the direct printing process for metal decoration, it may be especially remarked that the chrome glue process, as applied in the enamel process, has proven here to be very good. The chrome gelatine picture heated to enamel formation, finds application here, not only as etching ground, but also directly as decoration of the metal surfaces (upon copper, etc.), having by way of its saturated brown coloration, and its smoothness and solidity, a very pleasing appearance.

The enamel film serves, also, as a good covering in coloration, silvering of the metal, etc., whereby a number of the most magnificent effects can be obtained. In comparison to the former transfer print and hand painting process, it offers, particularly in this direction, a great advantage, in that the enamel coating stands much better than other films the warm treatment in the coloration baths that follow.

Translated by
Henry Dietrich.

OUR ILLUSTRATIONS.

Dana's studio contributes the frontispiece to this number of the Bulletin, and the result is a characteristic one. The dainty pose, skillful handling of drapery, background and accessories are what one has learned to expect from work bearing the imprint of this studio. The picture is a good one of Miss Blanche Walsh in one of her parts in a play that has been running in this city lately.

The child picture, on page 369, is from Huff's Studio, and is the work of Mr. John F. Sherman, who is one of our younger men, but whose work shows promise. The two heads of bulls, on pages 373 and 374, are the work of Mr. John Rösch, whose instantaneous work took first prize in Class H, at the '97 Convention.

* * *

Lieutenant F. M. Jones, Sergeant Signal Corps, United States Army, stationed at Governor's Island, New York Harbor, writes concerning metacarbol, as follows: "I have used the sample of metacarbol you sent me a few days since, and am very much pleased with it. In future I shall use it. I gave it a very severe test. The exposure I made was on Grant's Tomb, and the light was very poor. It was impossible to make a time exposure, on account of so many people moving about, so I made an exposure of one-twenty-fifth second, with full opening, using a Zeiss lens and Stanley No. 50 plate, and every particle of detail came out."

SENSITIVE ASPHALT.

By H. D. Farquhar.

THERE seems to be a great fascination for what is known as the asphalt process among certain dabblers in process work. The charm, however, usually vanishes with several trials, and it is regarded forever after as a process by which, could the asphalt be more easily prepared and at less expense, and the exposure reduced to minutes instead of hours, some wonderful results could be obtained.

For the benefit of the "dabblers" who have a desire to wade into this process of long exposure and wakeful nights, the following formula has been prepared:

That grade of asphalt known as Syrian should be selected; pulverize it and dissolve in chloroform to a thick solution. After the solution is complete, which will take about twenty-four hours, add three times the quantity of concentrated sulphuric ether; shake well and allow to stand, shaking frequently for three days. The ether is then poured off, the remaining asphalt washed again with ether, and the residue collected on a filter.

To remove the last traces of the non-sensitive asphalt, wash again with strong alcohol, collect the residue by filtering, as before, and dry in the dark.

To 80 grains of the sensitive asphalt thus obtained, add 3 ounces of benzole and a little Peruvian balsam; this addition makes the solution adhere to the plate, and also prevents it from cracking when dry. Fifty drops of lavender oil is now added, which makes the solution flow smoothly when coating the plate, and also gives in development clearer lines.

To make the lines show stronger in development, add to the asphalt solution a little aniline violet dissolved in chloroform. This solution works better after two or three weeks than when freshly prepared, and must always be carefully filtered before use.

The polished zinc or copper plate is thinly coated with the solution in a similar manner to flowing a negative glass with collodion. Some experience is necessary to get an even thickness over the entire plate, as the benzole evaporates very rapidly. Dry by gentle warming.

The exposure in direct sun rays will vary from fifteen to thirty minutes. Develop by placing in a tray and covering with turpentine until the image is plainly visible; remove and wash under a gentle stream of water, and wipe carefully with a cotton wad until the unexposed portions are removed. Dry with a bellows and warm slightly, when it is ready to be etched.

SOCIETIES

THE First Annual International Salon and Exhibition of the Pittsburg Amateur Photographic Society is to be held at the Carnegie Library Art Galleries, in Pittsburg, from January 11 to 21, 1898, and will be separated into two divisions, the salon and general exhibition, both of which will be open to all artistic workers throughout the world. The prospectus shows much of interest, and we would advise all interested in exhibition work to communicate with the Secretary, Mr. Joseph H. Hunter, 520 Greene street, Pittsburg, Pa., for entry blanks and information.

* * *

THE Seventh Annual Exhibition of the Toronto Camera Club will be held at the Club rooms and studio, in Toronto, from December 7th to 11th, inclusive, and a very excellent showing is anticipated.

The officers of the Club for the ensuing year are: Honorary President, A. W. Croil; President, E. E. King, M. D.; First Vice-President, W. H. Moss; Second Vice-President, Ernest M. Lake; Secretary and Treasurer, John J. Woolnough, 94 McPherson avenue, Toronto.

* * *

NATIONAL PHOTOGRAPHIC RECORD ASSOCIATION.—Under the above title an association has been formed in England, made up of representatives from the various photographic and scientific societies of the realm, for the purpose of collecting photographic records of objects and scenes of interest throughout the British Isles, with a view of depositing them in the British Museum, where they may be safely stored and be accessible to the public under proper regulations. The following gentlemen have been elected to office: J. Benjamin Stone, President; Alexander Graham, Treasurer; George Scamell, Honorary Secretary.

* * *

THE Baltimore Amateur Photographic Society, which has been in existence since 1885, is reported as being in a very healthy condition, holding weekly meetings, and occupying a club room finely situated and well equipped with everything needed in the way of studio work and lantern exhibits.

The officers for the present year are: A. S. Murray, President; Dr. Frank Slothower, Vice-President; B. G. Buck, Secretary.

* * *

THE annual meeting of the Ottawa Camera Club was held on October 28th, and the reports of the past year showed increase in membership and financial standing. A number of slides were shown during the evening, and the following officers were elected President, Mr. J. Wilson; Vice-President, Miss Marion White; Secretary and Treasurer, Mr. W. Ide.

* * *

THE Photographic Society of Philadelphia listened to a very interesting lecture on the evening of November 3d, by Dr. Benj. Sharp, on the subject of "The Priviloff Isles, and Their Fur-Seal Inhabitants." The lecture was illustrated by a considerable number of fine slides, and the evening was one of great pleasure.

The photographers of Wyoming Valley met on the evening of October 14th and organized a permanent association, agreeing to keep closed on Sunday and advance the art of photography to its highest standard.

The following officers were elected: President, Mr. Lee Stearns; Vice-President, Mr. Chas. Fritsch; Secretary, Mr. A. T. Sturtevant.

* * *

The Photographic Section of the Hartford Scientific Society has elected the following officers: Charles R. Nason, Chairman; L. W. H. Gradisky, Secretary and Treasurer.

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The Brockton Camera Club at its meeting on the evening of October 15th was entertained with a series of lantern slides of White Mountain views, loaned by Mr. George P. Putnam, of the firm of Horgan, Robey & Company, of Boston.

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The Second Annual Exhibition of the Pawtuxet Camera Club was held on November 5th and 6th, with a showing of over two hundred prints.

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The Second Annual Exhibit of amateur photography of the Case Library has recently been held at the Case Library Building and proved very successful, the display being above the average of last year. Ten of the best photographs exhibited in this collection will be selected for exhibition among the photographs to be shown in December under the auspices of the " American Amateur Photographer."

* * *

The Philadelphia Photographic Society celebrated its Twenty-fifth Anniversary on November 10th. A new skylight was formally opened by Mr. George G. Rockwood, and general festivities indulged in.

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The Chattanooga Camera Club held its regular meeting on October 18th, and elected the following officers: President, E. E. Geese; Vice-President, Charles G. Walline; Secretary, E. L. Mudge. The Club meets on the first and third Monday nights in each month. One lantern-slide exhibit is given each month during the winter and spring. Any club desiring to exchange views and lantern slides with this organization will have an opportunity to do so, by addressing the Secretary.

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Our Reviewer.
School of Practical Process Engraving

One of the most comprehensive works on magic and kindred topics comes to us under the title of " Magic, Stage Illusions and Scientific Diversions, including Trick Photography."

This volume is compiled and edited by Mr. Albert A. Hopkins, and published by Messrs. Munn & Co., of the *Scientific American*. The entire field of the black art is covered in an extremely comprehensive manner, and a very considerable portion of the book is devoted to photography in its relation to and connection with illusions, moving pictures and like matters. As a handbook of legerdemain it is valuable, and as a book of interest to the general reader it is absorbing. It is well printed, copiously illustrated and attractively bound.

Photograms of '97 comes to our desk as we go to press, and shows, upon hasty inspection, the usual quota of good features. The present number makes the third volume of the annual, and it is certainly an improvement over either of its predecessors. It is well printed on coated paper, and profusely illustrated with half-tone engravings, which are mainly of excellent artistic quality. Its contributed articles bear the stamp of genuine value and come from writers in this country and abroad. It is published by Dawbarn & Ward, Limited, London, England. Price, in cloth, 75 cents; paper covers, 50 cents.

We note that *The Camera*, the official organ of the Columbia Photographic Society, appears with its November issue as a twelve-page journal, and by so doing has added to the dignity and value of its appearance materially. We offer our congratulations, and trust that its girth may continue to increase.

"Sunlight and Shadow," a compilation of articles and illustrations by well-known writers and workers in photography, collected and edited by W. I. Lincoln Adams, makes a volume of nearly 150 pages, profusely illustrated, and bound in art canvas. The articles cover a wide range, and the book, printed on heavy woodcut paper, makes a very attractive appearance.

Illustrated London, published by the London Printing and Lithographic Company, of London, Ontario, is a very attractive record of the growth and present appearance of that city. It is printed on paper 9 x 12 inches, and contains 136 pages profusely illustrated with half-tone plates, and has also a large lithographed map. The photographic and half-tone work are of excellent quality, and the paper and presswork good.

Albert Sellner, of Quincy, Ill., has just published an illustrated "Descriptive Catalogue of Photographic Apparatus and Supplies," containing 64 pages of small type, closely printed and well displayed, in which a large and varied assortment of goods are brought to the notice of his customers in a very attractive manner.

The International Annual is now in a condition to warrant us in stating that it is by far the best volume of the series. It will be on the market by the time this issue of the Bulletin is published, and will be found to be full of good things, both in the way of articles by many of its old friends and also in the way of illustrations, which do credit to those who made the original negatives and those who have reproduced them.

It is a splendid specimen of bookmaking, and one which should be in the hands of every photographer who wishes to keep up with the progress of his art. The list of the contents shows an unusually attractive and instructive collection; any one alone of many articles therein named will be found fully worth the price of the entire book.

Prior's Automatic Photo Scale for the use of printers, publishers, photo-engravers, etc., is one of those small inventions which fill a large place in the needs of every photo-engraving and process establishment, inasmuch as it presents a ready method of computing size, proportion and scale of drawings for reduction or enlargement. It consists of a large transparent celluloid sheet divided into inches and fractions of an inch, and attached to the lower left-hand corner of which, by a pivot, is a transparent straight-edge with a black line printed on it, and so arranged that in whatever position the ruler is placed, this line always intersects the scale at the lower left-hand corner. It is altogether one of the most practical inventions of its kind that has ever come to our notice.

"King Washington," a Romance of the Hudson Highlands, by Adelaide Skeel and William H. Brearley, is a romance of the colonial days, which is of more than passing interest, and which is made of additional value by the charming illustrations of the old houses and landmarks alluded to in the text. Miss Skeel's name is a guarantee of the quality of the photographic work. Published by J. B. Lippincott Co.

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